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**Bibliography**

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Summary

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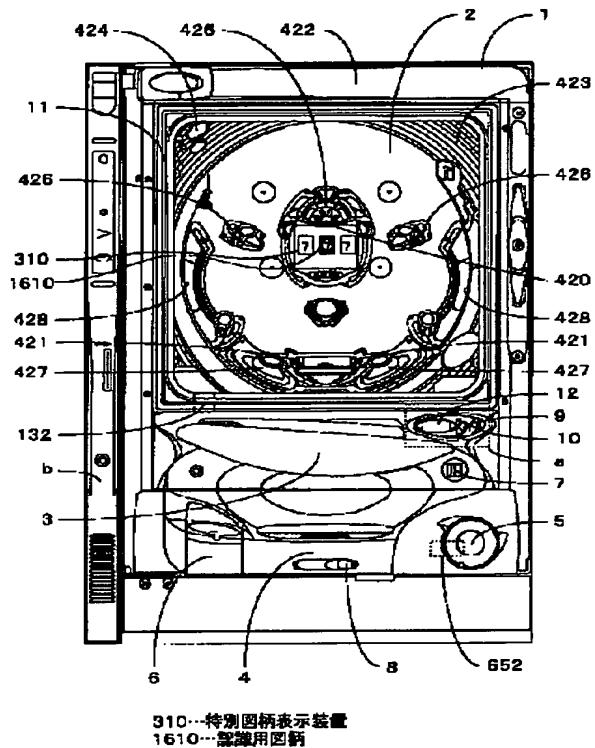
(57) [Abstract]

[Technical problem] The game machine with which the high display game of unexpected nature is further developed through the appearance of the pattern for recognition is offered.

[Means for Solution] As the pattern 1610 for recognition whose recognition irradiates recognition impotentia or identification information inadequate in recognition, and is enabled like real overshooting of the display game assumed as the slot machine is made to appear, unexpected nature is given by whether recognition of what identification information is attained with the pattern 1610 for recognition.

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**CLAIMS**

[Claim(s)]

[Claim 1] After having the following and indicating the identification information by adjustable on the aforementioned adjustable display based on formation of predetermined conditions, the display game which suspends an adjustable display and indicates two or more identification information by halt is performed. In the game machine which generates the special game state which can be given to a game person for predetermined game value when the display mode of the execution result

of this display game turns into a special halt result mode which is the combination of the identification information defined beforehand the aforementioned display-control means cannot be recognized by fully not irradiating the aforementioned identification information like real overshooting of the aforementioned display game -- it is -- it is -- the game machine characterized by making the pattern for recognition for irradiating the aforementioned identification information in a display mode inadequate in recognition, and making it the display mode which can be recognized appear Adjustable display which can adjustable display two or more identification information A display-control means to perform the display control of the aforementioned adjustable display

[Claim 2] After having the following and indicating the identification information by adjustable on the aforementioned adjustable display based on formation of predetermined conditions, the display game which suspends an adjustable display and indicates two or more identification information by halt is performed. In the game machine which generates the special game state which can be given to a game person for predetermined game value when the display mode of the execution result of this display game turns into a special halt result mode which is the combination of the identification information defined beforehand the aforementioned display-control means cannot be recognized because a cover pattern interrupts the reflected light from the aforementioned identification information like real overshooting of the aforementioned display game -- it is -- it is -- it carries out making the pattern for recognition for removing the aforementioned cover pattern that it should make the display mode which can recognize the aforementioned identification information in a display mode inadequate in recognition appear as the feature -- Game machine.

Adjustable display which can adjustable display two or more identification information A display-control means to perform the display control of the aforementioned adjustable display

[Claim 3] The aforementioned display-control means is a game machine according to claim 1 characterized by displaying that the illuminance of the aforementioned pattern for recognition which irradiates the aforementioned identification information like real overshooting of the aforementioned display game is raised regularly.

[Claim 4] The aforementioned display-control means is a game machine according to claim 1 characterized by displaying that the illuminance of the aforementioned pattern for recognition which irradiates the aforementioned identification information like real overshooting of the aforementioned display game is raised irregularly.

[Claim 5] The aforementioned display-control means is a game machine according to claim 1, 3, or 4 characterized by displaying that the illuminance of the aforementioned pattern for recognition which irradiates the aforementioned identification information like real overshooting of the aforementioned display game is fluctuated.

[Claim 6] The aforementioned display-control means is a game machine according to claim 1 characterized by displaying the range on which it displays that the range

which the aforementioned pattern for recognition which irradiates the aforementioned identification information like real overshooting of the aforementioned display game irradiates is extended regularly or, which the aforementioned pattern for recognition irradiates that it makes the aforementioned identification information approach regularly.

[Claim 7] The aforementioned display-control means is a game machine according to claim 1 characterized by displaying the range on which it displays that the range which the aforementioned pattern for recognition which irradiates the aforementioned identification information like real overshooting of the aforementioned display game irradiates is extended irregularly or, which the aforementioned pattern for recognition irradiates that it makes the aforementioned identification information approach irregularly.

[Claim 8] The aforementioned display-control means is a game machine according to claim 1, 6, or 7 characterized by displaying it that it makes the range on which it displays that the range of the aforementioned pattern for recognition which irradiates the aforementioned identification information like real overshooting of the aforementioned display game is fluctuated or, which the aforementioned pattern for recognition irradiates approach or estrange to the aforementioned identification information.

[Claim 9] The aforementioned display-control means is a game machine according to claim 2 characterized by changing regularly the grade to which the aforementioned cover pattern interrupts the reflected light from the aforementioned identification information, and displaying it possible [ recognition of the aforementioned identification information ] like real overshooting of the aforementioned display game.

[Claim 10] The aforementioned display-control means is a game machine according to claim 2 characterized by changing irregularly the grade to which the aforementioned cover pattern interrupts the reflected light from the aforementioned identification information, and displaying it possible [ recognition of the aforementioned identification information ] like real overshooting of the aforementioned display game.

[Claim 11] the aforementioned cover pattern is interrupting the reflected light from the aforementioned identification information like real overshooting of the aforementioned display game, and the aforementioned identification information cannot be recognized [ aforementioned ] for it -- it is -- it is -- the game machine according to claim 2, 9, or 10 characterized by being the misty pattern made into a display mode inadequate in recognition

[Claim 12] the aforementioned display-control means cannot be recognized [ aforementioned ] like real overshooting of the aforementioned display game -- it is -- it is -- the game machine according to claim 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 characterized by what is displayed as a different thing from all the aforementioned identification information that may become the display mode which can recognize [ aforementioned ] the aforementioned identification information in a display mode

inadequate in recognition

[Claim 13] The aforementioned display-control means is a game machine according to claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, or 12 characterized by making the aforementioned pattern for recognition appear a condition [ having changed into the reach state of having possibility of becoming the aforementioned special halt result mode ].

[Claim 14] The aforementioned display-control means is a game machine according to claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, or 12 characterized by making it change so that it may become the aforementioned special halt result mode from the state of the blank which is making the aforementioned pattern for recognition appear, and does not have possibility of becoming the aforementioned special halt result mode.

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

#### [0001]

[The technical field to which invention belongs] this invention is equipped with the adjustable display which can adjustable display two or more identification information, and a display-control means to perform the display control of the aforementioned adjustable display. The display game which suspends an adjustable display and indicates two or more identification information by halt after indicating the identification information by adjustable on the aforementioned adjustable display based on formation of predetermined conditions is performed. When the display mode of the execution result of this display game turns into a special halt result mode which is the combination of the identification information defined beforehand, predetermined game value is related with the game machine which generates the special game state which can be given to a game person.

#### [0002]

[Description of the Prior Art] There is a pachinko machine called a fever machine by what generally known from the former as this kind of a game machine. In a fever

machine, if the sphere hammered out to the game field formed in the game board wins a prize of a starting mouth, identification information, such as various patterns, carries out scrolling etc. to the adjustable display which consists of a liquid crystal screen etc., it will indicate by adjustable and the display game which an adjustable display stops after progress of a predetermined time will be performed. And a grand prize (the so-called fever) occurs, a large winning—a-prize mouth opens and closes repeatedly within the limit of the number of times of predetermined, and the state which can give a game person game value is formed at the time of the special halt result mode to which the display result at the time of turning off an adjustable display changes from the combination of specific identification information, such as "333" and "555."

[0003] In such a game machine, the idea nature of a game was raised, and in order to enliven a game person's hope, various kinds of creativity is put on the content of a display of a display game. For example, in the game machine currently indicated by JP,11-244477,A, JP,11-262564,A, and JP,11-47372,A, a concealment pattern is made to appear before a pattern and a pattern is hidden in it, and it is not visible from a game person, and carry out, or move a pattern behind a concealment pattern, and it hides, or has become that it seems that a pattern is made to become invisible from time to time from a concealment pattern. This has the composition of making a game person holding the fresh hope what pattern appears behind behind the concealment pattern.

[0004]

[Problem(s) to be Solved by the Invention] In the conventional game machine, although it was devising so that a hope fresh to a game person might be given, as a concealment pattern was made to appear or a pattern became invisible from time to time behind behind a concealment pattern, when the feature portion of a pattern appeared from behind the concealment pattern, a pattern can be recognized now, and it did not pass to the game of whether the concealment pattern has hidden the feature portion of a pattern, but the fresh pod unexpected nature of appearance was missing.

[0005] this invention was made paying attention to the trouble which the above conventional technology has, and aims at offering the game machine with which the high display game of unexpected nature is further developed through the appearance of the pattern for recognition.

[0006]

[Means for Solving the Problem] The place made into the summary of this invention for attaining this purpose consists in invention of each following item.

[1] The adjustable display which can adjustable display two or more identification information (310), It has a display-control means (100,300) to perform the display control of the aforementioned adjustable display (310). The display game which suspends an adjustable display and indicates two or more identification information by halt after indicating the identification information by adjustable on the

aforementioned adjustable display (310) based on formation of predetermined conditions is performed. In the game machine which generates the special game state which can be given to a game person for predetermined game value when the display mode of the execution result of this display game turns into a special halt result mode which is the combination of the identification information defined beforehand The aforementioned display-control means (100,300) recognition by fully not irradiating the aforementioned identification information like real overshooting of the aforementioned display game is impossible -- it is -- it is -- the game machine characterized by making the pattern (1610) for recognition for irradiating the aforementioned identification information in a display mode inadequate in recognition, and making it the display mode which can be recognized appear

[0007] [2] The adjustable display which can adjustable display two or more identification information (310), It has a display-control means (100,300) to perform the display control of the aforementioned adjustable display (310). The display game which suspends an adjustable display and indicates two or more identification information by halt after indicating the identification information by adjustable on the aforementioned adjustable display (310) based on formation of predetermined conditions is performed. In the game machine which generates the special game state which can be given to a game person for predetermined game value when the display mode of the execution result of this display game turns into a special halt result mode which is the combination of the identification information defined beforehand The aforementioned display-control means (100,300) Like real overshooting of the aforementioned display game, the reflected light from the aforementioned identification information recognition by a cover pattern (1620) interrupting is impossible -- it is -- it is -- the game machine characterized by making the pattern (1610) for recognition for removing the aforementioned cover pattern (1620) that it should make the display mode which can recognize the aforementioned identification information in a display mode inadequate in recognition appear

[0008] [3] The aforementioned display-control means (100,300) is a game machine given in [1] characterized by displaying that the illuminance of the aforementioned pattern (1610) for recognition which irradiates the aforementioned identification information like real overshooting of the aforementioned display game is raised regularly.

[0009] [4] The aforementioned display-control means (100,300) is a game machine given in [1] characterized by displaying that the illuminance of the aforementioned pattern (1610) for recognition which irradiates the aforementioned identification information like real overshooting of the aforementioned display game is raised irregularly.

[0010] [5] The aforementioned display-control means (100,300) is a game machine given in [1] characterized by displaying that the illuminance of the aforementioned pattern (1610) for recognition which irradiates the aforementioned identification

information like real overshooting of the aforementioned display game is fluctuated, [3], or [4].

[0011] [6] The aforementioned display-control means (100,300) is a game machine given in [1] characterized by displaying the range on which it displays that the range which the aforementioned pattern (1610) for recognition which irradiates the aforementioned identification information like real overshooting of the aforementioned display game irradiates is extended regularly or, which the aforementioned pattern (1610) for recognition irradiates that it makes the aforementioned identification information approach regularly.

[0012] [7] The aforementioned display-control means (100,300) is a game machine given in [1] characterized by displaying the range on which it displays that the range which the aforementioned pattern (1610) for recognition which irradiates the aforementioned identification information like real overshooting of the aforementioned display game irradiates is extended irregularly or, which the aforementioned pattern (1610) for recognition irradiates that it makes the aforementioned identification information approach irregularly.

[0013] [8] The aforementioned display-control means (100,300) is a game machine given in [1] characterized by to display it that it makes the range on which it displays that the range of the aforementioned pattern (1610) for recognition which irradiates the aforementioned identification information like real overshooting of the aforementioned display game is fluctuated or, which the aforementioned pattern (1610) for recognition irradiates approach or estrange to the aforementioned identification information, [6], or [7].

[0014] [9] The aforementioned display-control means (100,300) is a game machine given in [2] characterized by changing regularly the grade to which the aforementioned cover pattern (1620) interrupts the reflected light from the aforementioned identification information, and displaying it possible [ recognition of the aforementioned identification information ] like real overshooting of the aforementioned display game.

[0015] [10] The aforementioned display-control means (100,300) is a game machine given in [2] characterized by changing irregularly the grade to which the aforementioned cover pattern (1620) interrupts the reflected light from the aforementioned identification information, and displaying it possible [ recognition of the aforementioned identification information ] like real overshooting of the aforementioned display game.

[0016] [11] the aforementioned cover pattern (1620) is interrupting the reflected light from the aforementioned identification information like real overshooting of the aforementioned display game, and the aforementioned identification information cannot be recognized [ aforementioned ] for it --- it is -- it is -- a game machine given in [2] characterized by being the misty pattern made into a display mode inadequate in recognition, [9], or [10]

[0017] [12] The aforementioned display-control means (100,300) the aforementioned

recognition is as impossible as real overshooting of the aforementioned display game -- it is -- it is -- with all the aforementioned identification information that may become the display mode which can recognize [ aforementioned ] the aforementioned identification information in a display mode inadequate in recognition [1] characterized by what is displayed as a different thing, [2], [3], [4], [5], [6], [7], [8], [9], [10], or a game machine given in [11].

[0018] [13] The aforementioned display-control means (100,300) is a game machine given in [1] characterized by making the aforementioned pattern (1610) for recognition appear a condition [ having changed into the reach state of having possibility of becoming the aforementioned special halt result mode ], [2], [3], [4], [5], [6], [7], [8], "9", [10], or [12].

[0019] [14] The aforementioned display-control means (100,300) [1] characterized by making it change so that it may become the aforementioned special halt result mode from the state of the blank which does not have possibility of becoming the aforementioned special halt result mode, by making the aforementioned pattern (1610) for recognition appear, [2], [3], [4], [5], [6], [7], [8], "9", [10], or a game machine given in [12].

[0020] The aforementioned this invention acts as follows. A display-control means (100,300) performs display games, such as a pattern doubling game which the sphere likened with the slot machine based on formation of predetermined conditions, such as winning a prize of a starting mouth, on adjustable display (310). And if the result of a display game becomes special halt result modes defined beforehand, such as "777", operation of a large winning-a-prize mouth repeating opening and closing within the limit of the number of times of predetermined will be performed, and the special game state which can give predetermined game value will be formed in a game person.

[0021] a display-control means (100,300) cannot be recognized like real overshooting of the above display games -- it is -- it is -- the pattern (1610) for recognition for irradiating identification information inadequate in recognition and making recognition possible is made to appear For example, the illuminance of the pattern (1610) for recognition is raised regularly, or it raises irregularly. And it is made to fully irradiate identification information finally. Moreover, the illuminance of the pattern (1610) for recognition is fluctuated.

[0022] Thus, since the illuminance of the pattern (1610) for recognition is changed, a recognition pattern can become recognition impotentia, or recognition of it can be attained, it cannot be clear anymore because of the insufficiency of recognition, and can draw a game person's interest.

[0023] moreover, recognition of identification information is impossible because a cover pattern (1620) interrupts the reflected light from identification information -- it is -- it is -- while making it inadequate in recognition, in the thing which makes the pattern (1610) for recognition for removing a cover pattern (1620) appear, the content of a game which is rich in much more change can be offered by change of

the combination of a cover pattern (1620) and the pattern (1610) for recognition, or combination There is a misty pattern as a cover pattern (1620), and it is wrapping in identification information in a misty pattern, and is made recognition impotentia or a display mode inadequate in recognition. The cover pattern (1620) which is a misty pattern is removed by the pattern (1610) for recognition which is for example, a solar pattern.

[0024] on the other hand, recognition is impossible -- it is -- it is -- in order to enable recognition of identification information inadequate in recognition, you may display that it displays and the range irradiated so that the range which the pattern (1610) for recognition irradiates may be extended regularly or irregularly is fluctuated That is, recognition of identification information is gradually attained because the range to irradiate spreads.

[0025] Moreover, the range which the pattern (1610) for recognition irradiates may be displayed that it makes identification information approach regularly or irregularly, and you may display it that it makes the range to irradiate approach or estrange to identification information. That is, recognition of identification information is gradually attained because the range to irradiate approaches identification information.

[0026] Moreover, the pattern (1610) for recognition is made to appear, on condition that the display-control means (100,300) changed into the so-called reach state. The further thrill and further excitement are given to the game person whose hope was evoked with the advent of a reach state. You may make two or more patterns (1610) for recognition appear not only in one.

[0027] On the other hand, you may make it change even from the state of an entire blank where even for example, a reach state is not materialized, to generating of a grand prize by making the pattern (1610) for recognition appear. Thereby, the width of face of a display game can be expanded.

[0028] In addition, the pattern (1610) for recognition may irradiate the identification information by which it was indicated by halt, and may irradiate identification information in the stage which is indicating by adjustable.

[0029]

[Embodiments of the Invention] Hereafter, the gestalt of the operation which represents this invention based on a drawing is explained. Drawing 1 – drawing 17 show the game machine concerning the gestalt of 1 operation of this invention. The game machine concerning the gestalt of this operation consists of the main part 1 of a game machine which performs the game which hammers out a sphere on the game board 2, and the card unit (CR ball rental machine) b which is attached to this and lends out a sphere by insertion of a prepaid card.

[0030] The outline of the main part of game machine 1 whole is explained first. Drawing 1 is the elevation of the main part 1 of a game machine, and the card unit b. The main part 1 of a game machine is attached free [ attachment and detachment of the game board 2 in which the parts for the sphere discharged by the glass-holder

opening pilot switch 132 and game person for detecting opening of a glass holder 11 moving behind the game machine state lamp 422 which reports the specific game state of a game machine by lighting, the glass holder 11 which is formed in the shape of a frame and fixes front glass, and this glass holder, and advancing a game are attached ].

[0031] The upper saucer sphere omission lever 7 for extracting the sphere stored in the upper saucer 3 which stores a loan sphere and an expenditure sphere, the lower saucer 4 which stores the sphere with which it overflowed from this upper saucer 3, and the above top saucer 3 in the lower front face of a glass holder 11, the lower saucer sphere omission lever 8 for extracting the sphere stored in the bottom saucer 4 of the above, and the hit ball operation handle 5 for a game person doing hit ball operation are formed. Moreover, the aborted firing switch 652 for stopping discharge of a sphere is formed in the hit ball operation handle 5. In addition, the ash pan 6 for smokers is also formed in the side of the lower saucer 4.

[0032] Furthermore, the frequency display 12 for displaying and checking the residual frequency of a valuable value card as equipment for a game person operating the card unit b, the loan button 9 for performing loan directions of a sphere, and the return button 10 for performing return directions of a valuable value card are formed near the upper saucer 3, and those output terminals are connected to the control-panel substrate a on the tooth back of a game machine, respectively.

[0033] Drawing 2 is the main part 1 of a game machine, and the rear view of the card unit b. A control board, parts, etc. of various functional orders are consisted of by the tooth back of the main part 1 of a game machine. The main substrate 100 which manages and controls operation of the whole game as a control board here, Parallel communication receives the directions information from this main substrate 100. Expenditure operation of a prize sphere, The expenditure control board 200 which controls operation of a sphere on hire by performing card unit communication with the card unit connection substrate 900, The discharge control board 600 which controls discharge of a sphere, and the discharge motor 653 controlled by this discharge control board 600, The power supply substrate 700 which supplies predetermined power to each substrate, the external terminal assembly 800 for frames for connecting with an external instrument and outputting the external information for frames (awarded-balls signal, carrying out ball rental a signal, a sphere piece signal), and the card unit connection substrate 900 for connecting with the card unit b are formed.

[0034] Moreover, in the protective cover 93, the drop control board 300, the ramp-control substrate 400, and the voice-control substrate 500 grade are prepared at the game board 2. Each control board is dedicated to the case of exclusive use, falls from dust and other facility devices from the outside, and is made to be protected also from a sphere and also static electricity, and the electric noise. The case of the main substrate 100 has structure which can open and close only the predetermined number of times using the screw of exclusive us especially.

[0035] Next, the passage of the sphere which receives from pachinko ball supply equipment is explained. In drawing 2, whenever the sphere supplied from pachinko ball supply equipment (not shown) is stored by the tank unit 90 of the game on-board section and expenditure of a prize sphere and operation of a sphere on hire are performed, a sphere passes the chute unit 91 and the expenditure unit 92, and is sent out on the upper saucer 3.

[0036] The tank unit 90 stores the sphere supplied from pachinko ball supply equipment, if it is the awarded-balls tank sphere existence switch 801 and a sphere, it is made the base of this tank unit 90, and 94 is prepared in it. The awarded-balls tank sphere existence switch 801 is a switch which detects the existence of the sphere stored by the tank unit 90, a switch is inputted and the detecting signal is outputted to the exterior by the weight of the sphere to store via the external terminal assembly 800 for frames.

[0037] Moreover, if it is a sphere, it carries out and 94 is for leveling a sphere so that the sphere which flows the lane of the chute unit 91 may not upheave with sphere pressure. The base of the tank unit 90 inclines and has the structure where a sphere gathers and falls into the portion joined to the chute unit 91.

[0038] The chute unit 91 divides into two lanes the sphere which flows down from the aforementioned tank unit 90, and aligns. If it is a sphere, it carries out further, and a sphere is leveled more effectively and it is made to have sent into the expenditure unit 92 by 95, although it carries out and upheaval by sphere pressure is pressed down by 94, if it is the aforementioned sphere as a sphere goes to the expenditure unit 95.

[0039] Moreover, the chute sphere piece switch 131 is formed on the sphere path of the chute unit 91. The chute sphere piece switch 131 is a switch which detects the existence of the sphere to the expenditure unit 92, the detecting signal is inputted into the main substrate 100, and the existence of a sphere is supervised. This switch 131 serves as a difference with big connection existence with the main substrate 100, although the aforementioned awarded-balls tank sphere existence switch 801 and a use are similar.

[0040] While the expenditure unit 92 forms the sphere path to the above top saucer 3 The expenditure motor 222 for sending out a sphere on a sphere path, and the expenditure halt solenoid 223 which suppresses the flow (fall) of a sphere, Ball rental is carried out for detecting a loan sphere to the path change solenoid 224 which switches the path of a loan sphere and an expenditure sphere, and the awarded-balls-detection switch 130 for detecting an expenditure sphere, and the pilot-switch 220 grade is prepared.

[0041] It connects with the aforementioned expenditure control board 200, and the aforementioned expenditure motor 222 and the expenditure halt solenoid 223 are controlled. If the expenditure control board 200 has the expenditure demand of a predetermined sphere from the main substrate 100, the expenditure control board 200 operates the aforementioned path change solenoid 224, carries out the path of a

sphere to an expenditure sphere side, and sends out a sphere to the upper saucer 3 by the expenditure motor 222 and the expenditure halt solenoid 223.

[0042] Moreover, if the loan demand signal of a predetermined sphere is inputted into the expenditure control board 200 through the card unit connection substrate 900 by operation of a game person from the card unit b, the expenditure control board 200 operates the aforementioned path change solenoid 224, carries out the path of a sphere to a loan sphere side, and sends out a sphere to the upper saucer 3 by the expenditure motor 222 and the expenditure halt solenoid 223.

[0043] Moreover, the sphere path is made adjustable according to the content of a demand for carrying out the aforementioned ball rental to the awarded-balls-detection switch 130, dividing the count of each predetermined number of spheres, and carrying out counting certainly by the pilot switch 220. Furthermore, the awarded-balls-detection switch 130 is connected to the main substrate 100, the predetermined number of spheres is counted like the expenditure control board 200, and it enables it to check that expenditure has been performed more to accuracy.

[0044] The overflow switch 133 is formed on the sphere path formed so that the overflow sphere from the above top saucer 3 might flow down to the lower saucer 4. If the sphere stored in the bottom saucer 4 of the above fills and a sphere reaches to the installation position of this overflow switch 133, with the sphere pressure of the stored sphere, a switch will be inputted and the detecting signal will be inputted into the main substrate 100. If the input of the aforementioned overflow switch 133 is detected, the main substrate 100 will output directions information so that discharge of a sphere may be stopped to the expenditure control board 200.

[0045] Drawing 3 is the front view of the game board 2. The guidance rail 16 for leading the discharged sphere to the transverse plane of the game board 2 to the game field 17, By the detecting signal of the starting mouth switch 121 resulting from winning a prize to the nail (illustration ellipsis) and wind mill 15 for giving change to the flow of the game sphere led to the game field 17, each winning-a-prize mouth, and the starting mouth 21 that is one of the winning-a-prize mouths two or more kinds of special pattern display (adjustable display) 310 which performs the adjustable display of a pattern (identification information) specially -- usually -- the detecting signal of the pattern display operation gate switch 126 -- two or more kinds -- the adjustable display of a pattern is usually performed -- the pattern display 140 grade is usually prepared

[0046] Moreover, the out mouth 29 for discharging the sphere with which the game sphere went into neither of each winning-a-prize mouth in the game field 17, but fell to game outside the plane is formed in the bottom of the game board 2. When a sphere goes into the out mouth 29, any privilege is not given to a game person, either and expenditure of a prize sphere is not performed to him, either.

[0047] furthermore, as an ornament lamp They are the pattern hold Light Emitting Diode 420 and the number of hold spheres for usually operating the pattern display 140 (with the pattern display operation gate switch 126 usually) specially for

reporting the number of hold spheres for operating the pattern display 310 specially (a maximum number being four pieces at the number of spheres which won a prize of the starting mouth 21) to a game person. In order that a maximum number may report four pieces to a game person with the detected number of spheres, the pattern hold Light Emitting Diode 421, the side case lamp 423, the game frame state lamp 424, a pin center, large Light Emitting Diode 425, the gate Light Emitting Diode 426, the attacker Light Emitting Diode 427, and the side Light Emitting Diode 428 grade are usually prepared.

[0048] There are the starting mouth 21, \*\*\*\* winning-a-prize mouth 22a, \*\*\*\* winning-a-prize mouth 22b, right ore-shoot winning-a-prize mouth 23a, left ore-shoot winning-a-prize mouth 23b, and the large winning-a-prize mouth 24 as aforementioned winning-a-prize mouth. If a game sphere wins a prize of each winning-a-prize mouth, whenever a winning-a-prize sphere will be detected by the switch attached to each winning-a-prize mouth and a winning-a-prize sphere will be detected, the predetermined prize sphere assigned to each winning-a-prize mouth pays out.

[0049] Among these, the starting mouth 21 is a winning-a-prize mouth for securing the right of execution of the display game specially performed on the pattern display 310, as mentioned above, and the large winning-a-prize mouth 24 generates the special game state which can be given to a game person for predetermined game value. In addition, it mentions later in detail about the pattern display 310 specially.

[0050] Drawing 4 is the rear view of the game board 2. Various kinds of control boards, the associated part of those, etc. are attached to the tooth back of the game board 2 like what was already shown by drawing 2. The external terminal assembly 850 grade for the boards for connecting with the drop control board 300 which controls pattern display 310 specially, the ramp-control substrate 400 which performs control of the aforementioned ornament lamp, the voice-control substrate 500 which performs audio control, and an external instrument as a control board, and outputting the external information for the boards (great success 1 signal, great success 2 signal, number-of-times signal of pattern decision) is prepared.

[0051] As a switch for detecting the winning-a-prize sphere of each winning-a-prize mouth, the starting mouth switch 121, \*\*\*\* winning-a-prize mouth switch 122a, \*\*\*\* winning-a-prize mouth switch 122b, right ore-shoot winning-a-prize mouth switch 123a, left ore-shoot winning-a-prize mouth switch 123b, etc. are installed near [ each ] the winning-a-prize mouth. The accessory continuation starting device switch 124 and the count switch 125 are formed in the large winning-a-prize mouth 24 neighborhood. Although the switch of each winning-a-prize mouth is formed near [ each ] the winning-a-prize mouth, it can also be arranged on a path until a winning-a-prize sphere is discharged by game outside the plane.

[0052] If a sphere wins a prize of each winning-a-prize mouth, it is detected by each winning-a-prize mouth switch, and whenever it is detected, expenditure of the following predetermined prize sphere assigned for every winning-a-prize mouth will

be performed. It is assigned to from 8 and the large winning-a-prize mouth 24 (as opposed to detection of the winning-a-prize sphere by the accessory continuation starting device switch 124 and the count switch 125) with from 15 at from 5 and \*\*\*\* winning-a-prize mouth 22a, \*\*\*\* winning-a-prize mouth 22b, right ore-shoot winning-a-prize mouth 23a, and left ore-shoot winning-a-prize mouth 23b at the starting mouth 21. Although assignment of the number of prize spheres is fixed for every winning-a-prize mouth, it can also change arbitrarily.

[0053] Moreover, as a switch which detects the sphere for usually operating the pattern display 140, the pattern display operation gate switch 126 is formed in the position on the game board 2, and passage of the sphere which moves in the inside of the game field 17 is usually detected.

[0054] In order that the direction change solenoid 135 for switching the flow direction of a sphere to any of the aforementioned accessory continuation starting device switch 124 and the count switch 125 they are and a common electric accessory may carry out expanding-and-contracting operation of the flow of the sphere which won a prize of the large winning-a-prize mouth solenoid 134 for making the door of the large winning-a-prize mouth 24 open and close, and the large winning-a-prize mouth 24, the electric accessory solenoid 136 is usually formed in the associated equipment which carries out adjustable operation of the accessory.

[0055] Next, it explains still in detail about the main components on the game board 2. Generally the aforementioned starting mouth 21 is called starting CHAKKA, is equipped with the condition equipment which becomes the right-and-left ends of the winning-a-prize mouth from the movable piece of a couple, and makes each movable piece open and close by the driving source which usually consists of an electric accessory solenoid 136 (refer to drawing 4). The starting mouth 21 is constituted as the so-called electric tulip accessory which changes to the 1st state (open state) of being easy to win a prize by the switching action of each movable piece with the 2nd usual state (closed state) where a sphere cannot win a prize easily.

[0056] It is set up as starting conditions for a display game being performed with the special pattern display 310 which it following-\*\* that a sphere wins a prize of the starting mouth 21. As shown in drawing 6, the starting mouth 21 equips the interior with the starting mouth switch 121 which detects winning a prize of a sphere. If the starting mouth switch 121 detects a winning-a-prize sphere and is turned on, it will output a starting winning-a-prize signal to the main substrate (game control board) 100. In addition, what is necessary is for various sensors, such as a photosensor, a proximity sensor, or a magnetometric sensor, just to constitute the starting mouth switch 121.

[0057] Although the aforementioned special pattern display 310 is equipped with the viewing area which can adjustable display the various patterns as identification information all over the screen and it is constituted by the liquid crystal unit, it is also possible to adopt a CRT display machine, a drum unit, 7 segment drop, etc.

[0058] If a sphere wins a prize of the starting mouth 21 and a winning-a-prize

sphere is detected by the starting mouth switch 121, the right of the display game (specially pattern game) by the pattern display 310 will be acquired specially, and a display game will be performed. Specially, a display game serves as a specific display mode (great success), when [ two or more kinds specially displayed on the pattern display 310 of ] predetermined carries out time variation and a pattern (identification information) stops change in predetermined patterns (for example, "777" etc.).

[0059] Although the right of a display game was acquired when a sphere won a prize of the starting mouth 21, after considering as a hold and digesting the display game in a present progressive during the adjustable display of a pattern specially, the right made the hold is digested one by one. The number of holds of a display game is made into a maximum of four pieces, and is reported by the aforementioned special pattern hold Light Emitting Diode 420.

[0060] As shown in drawing 16, in the display game in the gestalt of this operation Three displays are specially displayed lining up side-by-side in the viewing area of the pattern display 310. The adjustable display which various patterns scroll from a top to the bottom for every display is started, it is set up so that arbitrary patterns may stop at a time for every display after [ one ] predetermined-time progress, and each display has played a role of one reel in a slot machine. Moreover, specially, the pattern 1610 for recognition appears in the viewing area of the pattern display 310 to predetermined timing, and signs that identification information is irradiated are displayed on it.

[0061] The case (it is all the case where it gathers identically etc., "777" etc. and three) where the pattern stopped to each display becomes a predetermined combination as a result of the aforementioned display game is determined as the specific display mode. Before this specific display mode is decided, the state where the pattern stopped to other two displays except the last one display was in agreement corresponds to a reach display mode.

[0062] If the result of the aforementioned display game is finally decided in a specific display mode, it is set up so that the special game state which the large winning-a-prize mouth 24 which following-\*\* opens and closes repeatedly within the limit of the number of times of predetermined may be formed. Moreover, when it finally does not decide in the aforementioned specific display mode, the result of the aforementioned display game separates and corresponds to a display mode. In addition, the identification information used for a display game is not limited to simple patterns, such as a number of 0-9, and a sign, and what imitated the specific character may be used for it.

[0063] the 2nd usual state (closed state) where the aforementioned large winning-a-prize mouth 24 is generally called an attacker, and a sphere cannot win [ the winning-a-prize mouth ] a prize easily due to the operation of driving sources, such as a solenoid (the large winning-a-prize mouth solenoid 134, direction change solenoid 135), and winning a prize -- it is constituted so that it may change to the 1st easy state (open state)

[0064] The large winning-a-prize mouth solenoid 134 operates, in order that only the predetermined number of times (for example, 15 times) may perform switching action of the door of the large winning-a-prize mouth 24, when the aforementioned specific game state is materialized. If the direction change solenoid 135 operates a path section implement in the state where the door of the large winning-a-prize mouth 24 was opened wide so that a winning-a-prize sphere may be led to the aforementioned accessory continuation starting device switch 124 side, and a winning-a-prize sphere is detected by the accessory continuation starting device switch 124, next, it will operate so that a winning-a-prize sphere may be led to the aforementioned count switch 125 side.

[0065] That is, when it becomes a specific display mode by the aforementioned display game, opening-and-closing control of the large winning-a-prize mouth 24 is carried out so that a game state may be directed specially. Specially, a game state is in the state where switching action called short-time \*\*\*\* is repeatedly performed by the 2nd state within the limit of the number of times of a predetermined round (for example, 16 times) here, after changing predetermined-time maintenance into the 1st state.

[0066] If the predetermined number of spheres (for example, ten pieces) wins a prize of the large winning-a-prize mouth 24 or predetermined time (about 30 seconds) passes, the door of the large winning-a-prize mouth 24 will be in a synizesis state. After a series of operation ends only the predetermined number of times of the above, the aforementioned specific game state is ended.

[0067] The aforementioned common pattern display 140 performs an adjustable display by lighting of Light Emitting Diode2 LGT divided into right and left. 7 segment drop may be used by methods other than this Light Emitting Diode2 LGT. If "hit" and "are a gap" is assigned, respectively and the pattern display operation gate switch 126 usually detects passage of a sphere, the right of the common pattern game by the pattern display 140 will usually be acquired in Light Emitting Diode divided into right and left, and a pattern game will usually be performed to it.

[0068] if the adjustable display by mutual blink of Light Emitting Diode on either side is started, the pattern display 140 performs a predetermined time adjustable display and a pattern game usually suspends it -- right and left -- it becomes one of lighting displays, and a game person can view and check the result of a judgment. When it comes to "a hit", an electric accessory (illustration ellipsis) usually operates as a result of a judgment.

[0069] During an adjustable display, usually, although the right of a pattern game is usually acquired when the pattern display 140 has detection of a passage sphere with the pattern display operation gate switch 126, it considers as a hold, and after [ in a present progressive ] a pattern game is usually digested, the right made the hold is digested one by one. Usually, the number of holds of a pattern game is made into a maximum of four pieces, and is reported by the aforementioned common pattern hold Light Emitting Diode 421.

[0070] Next, the various control boards used for control of the main part 1 of a game machine are explained. Drawing 5 and drawing 6 are the block diagrams showing the component relevant to the various control boards and it which are used for control of the main part 1 of a game machine. The main substrate (it is also called a game control board) 100, the expenditure control board 200, the display-control substrate 300, the ramp-control substrate 400, the voice-control substrate 500, the discharge control board 600, and the power supply substrate 700 are shown in drawing 5 and drawing 6 as a control board.

[0071] First, the main substrate 100 shown in drawing 6 is explained. The main substrate 100 operates on the basis of the clock which the clock circuit 108 inside the main substrate generates. Moreover, in inputting into CPU102 the interrupt signal of the fixed time interval which carried out dividing of the clock which the clock circuit 108 generated, and obtained it by the internal timer 107, CPU102 concerned is reset for every fixed time. CPU102 carries out a series of operation by performing processing divided so that it might end in time shorter than a reset interval for every reset.

[0072] It is a switch for the starting mouth switch 121, right common pattern display operation gate switch 126a, left common pattern display operation gate switch 126b, \*\*\*\* winning-a-prize mouth switch 122a, \*\*\*\* winning-a-prize mouth switch 122b, right ore-shoot winning-a-prize mouth switch 123a, and left ore-shoot winning-a-prize mouth switch 123b detecting winning a prize of a sphere, respectively, and the input signal from these switches is supplied to a gate circuit 110.

[0073] Each input signal from the accessory continuation starting device switch 124, the count switch 125, left awarded-balls-detection switch 130a, right awarded-balls-detection switch 130b, the chute sphere piece switch 131, the glass-holder opening pilot switch 132, and the overflow switch 133 is supplied to a gate circuit 111.

[0074] The address of gate circuits 110 and 111 is set as the address space of CPU102 by the memory-mapped-I/O method. A chip select signal is generated by decoding the address signal which CPU102 outputs, and the control signal of a light/lead in the address decoding circuit 113 according to the system clock which CPU102 outputs.

[0075] If gate circuits 110 and 111 are selected in this chip select signal, each input signal from starting mouth switch 121 grade will be outputted to a data bus through a gate circuit. Each input signal on a data bus is memorized to the RAM field specified for every input signal, after multiple-times detection will be carried out by it by the time it was reset next by the interrupt signal generated for every fixed time, and chattering prevention processing is performed.

[0076] The input signal from the starting mouth switch 121 as an awarded-balls signal of five-piece awarded balls The input signal from \*\*\*\* winning-a-prize mouth switch 122a, \*\*\*\* winning-a-prize mouth switch 122b, right ore-shoot winning-a-prize mouth switch 123a, and left ore-shoot winning-a-prize mouth switch 123b, respectively moreover, as an awarded-balls signal of eight-piece awarded balls

Furthermore, the input signal from the accessory continuation starting device switch 124 and the count switch 125 is treated as an awarded-balls signal of 15-piece awarded balls, and is memorized to the RAM field to which the winning-a-prize number detected with each switch was specified. Moreover, it can come, simultaneously data processing of the awarded-balls total is carried out by CPU102, and it memorizes to the appointed RAM field.

[0077] In addition, a random number value is set to the input signal from the starting mouth switch 121, right common pattern display operation gate switch 126a, and left common pattern display operation gate switch 126b, respectively, and these values are memorized to a RAM field. The game state of the main part 1 of a game machine is set up based on this data, and data are outputted to each control board.

[0078] The output data to each control board pass along the buffer 114 formed in the middle of the data bus, and are further outputted to latch circuits 112a-112g through an output data bus. On the other hand, a bus signal becomes Mukai's flow by arranging a buffer 114 in the middle of the data bus which connects the latch circuit and CPU102 for an output, and it becomes the cure of unjust prevention.

[0079] When data are in a five starting mouth switch awarded-balls RAM field, a right-and-left sleeve winning-a-prize mouth switch, an eight right-and-left ore-shoot winning-a-prize mouth switch awarded-balls RAM field, an accessory continuation starting device switch, and a 15 count switch awarded-balls RAM field, CPU102 outputs the 8-bit awarded-balls data set as each number of awarded balls to latch circuit 112a through a data bus and an output data bus one by one. The control signal of the interrupt signal to the expenditure control board 200 and a strobe signal is outputted to latch circuit 112e through a data bus and an output data bus so that it may align with this.

[0080] If the chip select signal decoded and obtained in the address decoding circuit 113 controlled by memory mapped I/O is outputted to latch circuit 112a and latch circuit 112e one by one, 8-bit awarded-balls data will be latched to latch circuit 112a, the control signal of an interrupt signal and a strobe signal will be latched to latch circuit 112e, respectively, and the output signal which consisted of 2-bit control signals of 8 bit-parallel awarded-balls output signal, an interrupt signal, and a strobe signal will be outputted to an expenditure control board as awarded-balls data.

[0081] The expenditure control board 200 shown in drawing 7 controls a sphere eccrasis mechanism, and performs awarded-balls eccrasis of the number corresponding to awarded-balls data. The discharged awarded balls are detected by left awarded-balls-detection switch 130a and right awarded-balls-detection switch 130b, and the detecting signal is outputted to a gate circuit 211. By outputting a chip select signal to a gate circuit 211 from the address decoding circuit 213, the detection signal which left awarded-balls-detection switch 130a and right awarded-balls-detection switch 130b output is outputted on a data bus, and is incorporated by CPU102.

[0082] these detecting signals -- being based -- actually -- expenditure -- data processing of the awarded-balls total is carried out by CPU102 the bottom, subtraction processing of the value is carried out from the stored data of a RAM field, and the data of an awarded-balls total are updated by real time Moreover, for every number of setup of the number of eccrisis awarded balls, an output signal is outputted to 112f of latch circuits, and a pulse output is carried out outside synchronizing with the chip select signal of the address decoding circuit 113.

[0083] A random number value is acquired to the input signal of the winning-a-prize starting mouth switch 121, right common pattern display operation gate switch 126a, and left common pattern display operation gate switch 126b, respectively, the kind (control pattern) of game production is determined by CPU102 based on this, game state production data are generated, and it memorizes to a RAM field.

[0084] Moreover, the left figure handle data which define the halt pattern corresponding to the aforementioned game state production data, inside pattern data, right figure handle data, the pattern data for recognition, etc. are outputted to the display-control substrate 300 as display production data at time series. That is, if a 8-bit recognition code and the 8 bit data of display state production are outputted to latch circuit 112b one by one through a data bus from CPU102, the interrupt signal to the display-control substrate 300 and the 2-bit control signal of each strobe signal will be outputted to latch circuit 112e so that it may align with these.

[0085] These signals are the timing based on the chip select signal decoded and outputted from the address decoding circuit 113 controlled by memory mapped I/O, it is latched to a latch circuit one by one, a parallel output is carried out, and left figure handle data, inside pattern data, right figure handle data, the pattern data for recognition, and change halt data are outputted to the display-control substrate 300 one by one as display production data at time series.

[0086] It aligns with display production data and 8 bit-parallel lamp display output data and a control signal are outputted to the ramp-control display substrate 400 through latch circuit 112c. Moreover, it aligns with display production data and 8 bit-parallel sound-sources output data and a control signal are outputted to the voice-control substrate 500 through 112d of latch circuits. That is, it aligns with the timing by which each data is outputted to a data bus, and a chip select signal is outputted from an address decoding circuit, and the data on a data bus are latched to latch circuits 112c and 112d, and it is outputted to ramp-control display substrate 400 grade.

[0087] When a game state is in a game state (great success) specially, it aligns with game state production data, and the control data of the large winning-a-prize mouth solenoid 134 is outputted to 112g of latch circuits, and the chip select signal from the address decoding circuit 113 is inputted into 112g of latch circuits. The control data of the large winning-a-prize mouth solenoid 134 is outputted from 112g of latch circuits by this, the large winning-a-prize mouth solenoid 134 drives, the large

winning-a-prize mouth 24 will be in switching condition, and guidance of it is attained in a sphere at the large winning-a-prize mouth 24.

[0088] If the accessory continuation starting device switch 124 arranged to the specific field of the large winning-a-prize mouth 24 interior detects a sphere, a sphere detection signal will be outputted, and this signal is outputted to a data bus through a gate circuit 111, and is incorporated by CPU102. As a result of the detection processing based on the sphere detection signal outputted from the accessory continuation starting device switch 124, the control data of the direction change solenoid 135 is outputted to 112g of latch circuits, and the direction change solenoid 135 is braked. Based on the sphere detection signal simultaneously outputted from the accessory continuation starting device switch 124, the round continuation data in which it is shown whether a great success state is continued to a next round are memorized to a RAM field.

[0089] By braking the direction change solenoid 135, counting of the sphere is carried out with the count switch 125 arranged in the large winning-a-prize mouth 24. If the number of total indicator of the data by which counting was carried out with the count switch 125 reaches predetermined quantity, the output data of 112g of latch circuits will be changed, the large winning-a-prize mouth solenoid 134 and the direction change solenoid 135 will be in a non-active state, and one great success round is completed. After a predetermined time, when round continuation data show continuation of a round, a great success state round continues further by the control method mentioned above.

[0090] A random number value is acquired to the input signal from right common pattern display operation gate switch 126a and left common pattern display operation gate switch 126b, respectively. Based on this random number value, the display-control data of the pattern display 140 (usually the pattern Light Emitting Diode 1 usually the pattern Light Emitting Diode 2) are usually generated, and this is outputted to 112g of latch circuits through a data bus from CPU102. And whenever a chip select signal is outputted from the address decoding circuit 113, a pattern Light Emitting Diode display is usually performed fixed time.

[0091] When the acquisition result of a random number value is a hit, while the braking data of the electric accessory solenoid 136 are usually outputted to 112g of latch circuits from CPU102, according to the chip select signal from the address decoding circuit 113, a fixed time output is carried out from 112g of latch circuits, and the electric accessory solenoid 136 is usually controlled. For this reason, the state where a sphere tends to win a prize of the starting mouth 21 in the game board 2 occurs.

[0092] If a power supply is supplied to the main substrate 100, a reset signal is supplied and each device of the main substrate 100 will be in a reset state from the power supply substrate 700. A system-reset signal will be in a non-active state after that, and each device changes to an active state. If a system-reset signal carries out signal change at a non-active state, the reset signal to an one chip

microcomputer 101 will serve as non-activity after the fixed passage of time by delay processing by clock synchronization and the delay circuit 109. An one chip microcomputer 101 will be in a working state by this, and the operating state of the main substrate 100 is maintained. Then, initial setting of an one chip microcomputer 101 is performed.

[0093] When the power supply of game opportunity external supply is unstable, from the power supply substrate 700, a power failure detecting signal is supplied to NMI (non maskable interrupt)105 of an one chip microcomputer 101, and evacuation operation of each storage region is performed in an one chip microcomputer 101.

[0094] Specifically, after detecting awarded-balls-detection data over fixed time, the data of a power failure processing judging are saved to a RAM field, and RAM104 is protected. That is, backup power supply DC5VBB is supplied to RAM104 from the power supply substrate 700, and the storage state of RAM104 is held because supply voltage falls.

[0095] If it recognizes that there was power failure processing based on the existence of the data of a power failure processing judging when a power supply is supplied to a degree, an one chip microcomputer 101 will perform power failure restoration processing. If a RAM initialization signal is an active state at the time of initial setting, CPU102 will detect the data of I/O Port 106, and will initialize a RAM field.

[0096] The signal which detected sphere plugging of awarded balls with the lower pan of the game face of a board is incorporated by the one chip microcomputer 101 through a gate circuit 111 and a data bus by the signal and the overflow switch 133 which detected the sphere piece with the chute sphere piece switch 131. These signals are outputted to the expenditure control board 200 with the same composition as awarded-balls output data from latch circuit 112a after data conversion. On the other hand, a these latch circuits [ 112a~112g ] output is \*\*, and takes an irreversible output form.

[0097] The main substrate 100 operates on the basis of the clock which the clock circuit 108 inside the main substrate generates. Moreover, an internal timer 107 generates an interrupt signal in CPU102 in a fixed time interval by dividing operation. CPU102 performs various processings for every fixed time when the interrupt signal concerned is inputted.

[0098] Next, the expenditure control base 200 shown in drawing 7 is explained. The expenditure control board 200 performs 1 direction communication of only reception from the main substrate 100, and receives the communication data which consisted of 8 bit-parallel awarded-balls data, an awarded-balls data control signal 1, and an awarded-balls data control signal 2.

[0099] If the awarded-balls data control signal 1 is inputted into the counter circuit 202 of an one chip microcomputer 201, an interrupt signal will be outputted to CPU203 from the counter circuit 202 concerned. Thereby, the awarded-balls data control signal 1 makes incorporation of awarded-balls data a trigger to CPU203.

[0100] CPU203 outputs a chip select signal to a gate circuit 212 and a gate circuit 211 through the address decoding circuit 213, incorporates awarded-balls data and various kinds of signals which are inputted into gate circuits 212 and 211 through a gate circuit and a data bus, and saves them at RAM205. And expenditure operation is performed one by one with the number of awarded balls corresponding to the incorporated awarded-balls data.

[0101] CPU203 outputs an awarded-balls path change signal to a latch circuit 215 through a data bus, and makes a chip select signal output from the address decoding circuit 213 simultaneously with this. An awarded-balls path change signal is outputted to a solenoid 224 by this, and awarded-balls path reservation of expenditure operation is performed. Then, the halt release signal of an expenditure halt solenoid signal is outputted to a latch circuit 214, the expenditure motor control signals 1, 2, 3, and 4 are outputted to the expenditure motor 222 one by one, and awarded-balls expenditure operation is performed, controlling motor rotation by output timing of a chip select signal.

[0102] When the interrupt signal of a fixed time interval is generated to CPU203 by the internal timer 208, the detecting signal of an awarded-balls expenditure sphere is incorporated to a data bus to this interruption timing on the basis of the clock of the clock circuit 209 and the predetermined number of awarded balls is detected, the drive of the expenditure halt solenoid 223 and the expenditure motor 222 is stopped. In addition, detection of an awarded-balls expenditure sphere is performed by right awarded-balls-detection switch 130b which carried out ball rental and was installed in the path, and left awarded-balls-detection switch 130a, and these detecting signals are incorporated by the data bus with outputting a chip select signal to a gate circuit 211.

[0103] Ball rental is carried out and operation is performed by carrying out ball rental between the card units (CR ball rental machine) b, and transmitting and receiving a signal through a gate circuit 211 and a latch circuit 215. By carrying out ball rental, CPU203 lends by right on-hire sphere pilot-switch 220a which carried out ball rental through the latch circuit 215, outputted and carried out ball rental of the path change signal to the path change solenoid 224 at the time of operation, secured and carried out ball rental of the path, and was installed in the path, and left on-hire sphere pilot-switch 220b, detects a sphere, and performs expenditure operation.

[0104] Ball rental is carried out and an information output is carried out from a latch circuit 215 for every fixed numbers in operation outside. Moreover, ball rental is carried out and a discharge enabling signal is outputted from a latch circuit 215 by the active state to the discharge control board 600 in a state with normal transmission and reception of a signal. Moreover, if ball rental is carried out and abnormalities occur in transmission and reception of a signal, a discharge enabling signal changes to a non-active state, and will be in the state in which sphere discharge is impossible. However, discharge becomes possible because carry out ball

rental and transmission and reception of a signal return to a normal state.

[0105] In addition, in expenditure operation, if the chute sphere piece signal of the chute sphere piece switch 131 and the overflow signal of the overflow switch 133 installed in the lower saucer 4 of the main part 1 of a game machine are transmitted to awarded-balls data from the main substrate 100, the expenditure control board 200 will stop expenditure operation. Moreover, expenditure operation is resumed by transmitting each release signal to awarded-balls data.

[0106] If a power supply is supplied to the expenditure control board 200, a system-reset signal is supplied from the power supply substrate 700, and each device of the expenditure control board 200 will be in a reset state. Then, as for each device, a reset signal changes to an active state by the non-active state.

[0107] By delay processing of clock synchronization and a delay circuit 210, the reset signal to an one chip microcomputer 201 becomes non-activity after the fixed passage of time, after the original reset signal carries out signal change at a non-active state. In this way, after the original reset signal will be in a non-active state, after the fixed passage of time, an one chip microcomputer 201 will be in a working state, and the operating state of the expenditure control board 200 is maintained. Then, initial setting of an one chip microcomputer 201 is performed.

[0108] When the power supply of game opportunity external supply is unstable, from the power supply substrate 700, a power failure detecting signal is supplied to NMI (non maskable interrupt)206 of an one chip microcomputer 201, and evacuation operation of each storage region is performed in an one chip microcomputer 201. Specifically, after detecting awarded-balls-detection data over fixed time, the data of a power failure processing judging are saved to a RAM field, and RAM205 is protected.

[0109] When supply voltage falls, DC5VBB is supplied to RAM205 as a backup power supply from the power supply substrate 700, and the storage state of RAM205 is held. When current supply is carried out again, an one chip microcomputer 201 performs power failure restoration processing by recognizing existence of the data of a power failure processing judging. If a RAM initialization signal is an active state at the time of initial setting, CPU203 will detect the data of I/O Port 106, and will initialize a RAM field.

[0110] Next, the display-control substrate 300 shown in drawing 8 is explained. The display-control substrate (display-control means) 300 controls special pattern display (adjustable display) 310 mainly installed on the game board 2. The display-control substrate 300 has the drop control CPU 301 which reads and performs the drop control ROM 302 which has memorized a predetermined image-processing procedure (program) and predetermined picture control data, and a predetermined image-processing procedure.

[0111] Moreover, the display-control substrate 300 acquires control-lead information through an input/output interface 306 by the drop control CPU 301 with the input/output interface 306 for performing the drop control RAM 303 for

memorizing the information acquired by performing an image-processing procedure by the aforementioned drop control CPU 301, the directions information from the main substrate 100, each control IC in a display-control substrate, etc. and I/O, and has the picture control IC 304 which generates a concrete picture.

[0112] Furthermore, the display-control substrate 300 is managed by the picture control IC 304, and has the test firing testing-terminal 307 grade for outputting outside the signal for checking that the drop control CPU 301 operates normally and the picture is displayed as image data ROM305 which data-ized various pictures and has memorized them.

[0113] Directions information is inputted into the drop control CPU 301 by parallel communication from the main substrate 100 through an input/output interface 306. The drop control CPU 301 performs the content of the inputted directions information according to the image-processing procedure memorized by the drop control ROM 302, and it performs concrete directions to the picture control IC 304, arranging and storing information in the drop control RAM 303.

[0114] According to directions of the drop control CPU 301, with reference to image data ROM305, the picture control IC 304 generates a concrete video signal, and outputs it to display. Although VRAM which is the field which memorizes temporarily the image data which the picture control IC 304 generated, pallet (color) information, etc. is not illustrated with the block diagram of drawing 8 , you may constitute from an one chip microcomputer which built VRAM in the interior of the picture control IC 304.

[0115] The reset signal from the power supply substrate 700 will be inputted into the drop control CPU 301 from the power supply substrate 700, if a power supply is supplied to the main part 1 of a game machine. Then, the drop control CPU 301 initializes each control circuit in the display-control substrate 300 according to the picture control procedure memorized by the drop control ROM 302.

[0116] Next, the ramp-control substrate 400 shown in drawing 9 is explained. The ramp-control substrate 400 performs lighting control of the game machine state lamp 422 installed on the front face of the main part 1 of a game machine, or the game board 2, the side case lamp 423, and various kinds Light Emitting Diode 424 - 428,420,421 grades.

[0117] Ramp-control ROM402 which has memorized ramp-control procedure (program) and control data predetermined in the ramp-control substrate 400, Ramp-control CPU401 which reads and performs predetermined ramp-control procedure, Ramp-control RAM403 which memorizes the information acquired by performing ramp-control procedure by ramp-control CPU401, The input/output interface 404 for performing I/O with the directions information from the main substrate 100, each control circuit in the ramp-control substrate 400, etc., It consists of driver line 405 grades for making the lighting signal of each lamp and Light Emitting Diode which has connected with the ramp-control substrate 400 through an input/output interface by ramp-control CPU401 drive.

[0118] Directions information is inputted into ramp-control CPU401 by parallel communication from the main substrate 100 through an input/output interface 404. Ramp-control CPU401 performs the content of the inputted directions information according to the ramp-control procedure memorized by ramp-control ROM402, arranging and storing information in ramp-control RAM403, operates a driver line 405 and performs lighting and putting out lights of each lamp and Light Emitting Diode connected.

[0119] The reset signal from the power supply substrate 700 will be inputted into ramp-control CPU401 from the power supply substrate 700, if a power supply is supplied to the main part 1 of a game machine. And ramp-control CPU401 initializes each control circuit in a ramp-control substrate according to the control procedure memorized by ramp-control ROM402.

[0120] Next, the voice-control substrate 500 shown in drawing 10 is explained. The voice-control substrate 500 controls a sound effect, voice, etc. by game production, when the main part 1 of a game machine is in a game state. Moreover, when it is not in a game state, the beep sound for telling the abnormal condition of the main part 1 of a game machine etc. is controlled.

[0121] The voice control ROM 502 which has memorized a speech processing procedure (program) and control data predetermined in the voice-control substrate 500. The voice control RAM 503 which memorizes the information which performed the speech processing procedure by the voice control CPU 501 and voice control CPU 501 which read and perform a predetermined voice-control procedure, and was acquired The input/output interface 506 for performing each control IC etc. and the I/O in the directions information from the main substrate 100, or the voice-control substrate 500, The voice control IC 504 which acquires control-lead information through an input/output interface by the voice control CPU 501, and generates concrete voice It is managed by the voice control IC 504 and consists of amplifier circuits 507 which amplify voice data ROM505 which data-ized various voice and has memorized it, and the sound signal generated from the voice control IC 501.

[0122] As for a voice control CPU 501, directions information is inputted by parallel communication from the main substrate 100 through an input/output interface 506. A voice control CPU 501 performs the contents of the inputted directions information according to the voice-control procedure memorized by the voice control ROM 502, and it performs concrete directions to a voice control IC 504, arranging and storing information in a voice control RAM 503.

[0123] According to directions of a voice control CPU 501, with reference to voice data ROM505, a voice control IC 504 generates the signal of concrete voice, and outputs it to the amplifier circuit 507. If, as for the reset signal from a power supply substrate, a power supply is switched on at a pachinko machine, it will be inputted into a voice control CPU 501 from this power supply substrate 700, and a voice control CPU 501 will initialize each control circuit in a voice-control substrate according to the voice-control procedure memorized by the voice control ROM 503.

[0124] Next, the discharge control board 600 shown in drawing 11 is explained. The oscillator circuit 601 which is a circuit which generates the pulse for the discharge control board 600 making the rotational frequency of the stepping motor currently used for the discharge motor 653 a predetermined rotational frequency, the signal from a frequency divider 602 and the touch sensor 651 in the handle section 650, the signal from the stop switch 652, and the reset signal from the power supply substrate 700 -- and The discharge enabling signal from the aforementioned expenditure control board 200 is judged, and it consists of a motorised signal-control circuit 603 which generates a discharge motorised signal, and driver line 604 grade for exciting each coil of a stepping motor (discharge motor 653).

[0125] The aforementioned handle section 650 consists of stepping motors 653 (discharge motor) for the touch sensor 651 which detects whether the game person is touching the handle 5, and a game person firing the stop switch 652 and sphere which enable it to stop discharge of a sphere arbitrarily etc.

[0126] If a power supply is supplied to the main part 1 of a game machine, the reset signal from the power supply substrate 700 will be inputted into the motorised signal-control circuit 603 from the power supply substrate 700, and will initialize each circuit of the discharge control board 600.

[0127] If the touch sensor 651 in the handle section 650 is in the state where the game person is touching the handle 5, it will output the signal which that it can discharge regards, and if it is in the state where the game person is not touching a handle 5, it will output the signal which that it cannot discharge regards to the motorised signal-control circuit 603, respectively.

[0128] It is the switch formed so that a game person could stop discharge of a sphere arbitrarily, the stop switch 652 outputs the aborted firing signal of a sphere to the motorised signal-control circuit 603, when operation of the stop switch 652 is done by the game person, and when there is no input of the stop switch 652, it outputs the discharge signal of a sphere.

[0129] Moreover, the stop switch 652 outputs the same signal as the state where the input was carried out from the stop switch 652, when there is no operation from a game person to the stop switch 652 in any way and a handle 5 will be rotated.

Namely, in the state where the handle 5 is not rotating, it will be in the state where the signal from the stop switch 652 is inputted, on the structure of the handle 5 interior. That is, after a power supply is supplied to the main part 1 of a game machine, the aforementioned reset signal is inputted into the motorised signal-control circuit 603 and initialization of each circuit is performed, a sphere is discharged only after the game person touched the handle 5 and it is rotated.

[0130] Next, the power supply substrate 700 shown in drawing 12 is explained. A diode-bridge rectifier performs full wave rectification for AC24V supplied from the outside, and DC-power-supply DC24V are generated. A capacitor performs \*\*\*\* to DC24V power supply through diode, and DC32V power supply is generated. DC24V and DC32V are astable power supplies.

[0131] DC24V are supplied to a power circuit 701, the constant voltage power supply of stabilization power supply DC18V, DC12V, and DC5V is generated, and the aforementioned main substrate 100, the aforementioned expenditure control board 200, the aforementioned ramp-control substrate 400, the aforementioned voice-control substrate 500, the aforementioned display-control substrate 300, and the aforementioned discharge control board 600 are supplied.

[0132] The constant voltage power supply of generated DC5V is connected to the capacitor of the backup circuit 702 through diode, the backup power supply of DC5VBB is generated, and DC5VBB is supplied to the main substrate 100 and the aforementioned expenditure control board 200. The aforementioned AC24V are supplied to the card unit connection substrate 900, and are used for the power supply of the aforementioned expenditure control board 200, and the power supply for communication of the card unit b and the control-panel substrate a.

[0133] The voltage level of DC24V power supply is detected by the voltage detector 708, and it outputs to a delay circuit 707. A delay circuit 707 has the time delay of sec the internal time constant of 500mm, and unless the continuous-out-put time of the voltage detector 708 is larger than the time constant of a delay circuit 707, a delay circuit 707 does not output an output signal. For this reason, the voltage variation of the time when the voltage level of DC24V power supply is smaller than the time constant of a delay circuit 707, and a power supply halt are disregarded, and a power failure detecting signal is not outputted outside from a power supply substrate.

[0134] If a bigger input signal than a time constant is in a delay circuit 707, a delay circuit 707 will output a power failure detecting signal to the serial input terminal of the aforementioned main substrate 100, the aforementioned expenditure control board 200, and a shift register 704. As for 8 bit-shift register 704, the clock of sec is always inputted the period of 20mm from the clock circuit 706.

[0135] The 8-bit data input terminal is fixed to zero here. If a power failure detecting signal inputs into 8 bit-shift register 704 for this reason, a reset signal will be outputted to the aforementioned main substrate 100, the aforementioned expenditure control board 200, the aforementioned discharge control board 600, the aforementioned display-control substrate 300, the aforementioned ramp-control substrate 400, and the aforementioned voice-control substrate 500 from the 8 clock (about 160mm sec) back 8 bit-shift register 704.

[0136] The time, power failure detecting signal, and reset signal of a time constant of a delay circuit 707 are outputted by the active state from the time of circumference circuit power supply starting after the time of power supply starting, and a power fail recovery. A power failure detecting signal will be in a non-active state after the time of the time constant of a delay circuit 707, and a reset signal is outputted by the after [ 8 clocks ] non-active state of 8 bit-shift register 704. A RAM initialization signal is outputted to the aforementioned main substrate 100 and the aforementioned expenditure control board 200 by the active state by pushing

the RAM initialization switch 705 manually.

[0137] Next, an operation of a game machine is explained. A game person's operation of a handle 5 drives one pachinko ball at a time into the game field currently formed in the game board 2. The pachinko ball which won a prize in the starting mouth 21 is detected by the starting mouth switch 121, and the adjustable display of various patterns (identification information) is specially started in the pattern display 310 based on the starting signal of the starting mouth switch 121.

[0138] Drawing 16 shows an example of the flow of the display game specially developed on the pattern display 310. If a display game begins, as shown in drawing 16 a, in three display frames (the left display frame 311, the inside display frame 312, right display frame 313) currently specially displayed on the pattern display 310, identification information will start change (the downward arrow expresses the upset condition of a pattern drawing). After a while, a halt indication of the identification information of 1 is given from one of display frames at order. In this drawing b, the identification information of "7" indicates by halt and the reach display mode is formed in the display frame of two of three right and left.

[0139] While being smeared away black as shown in drawing 16 c and d when the reach display mode was formed, the pattern 1610 for recognition appears in the display frame 312. The pattern 1610 for recognition is a pattern which imitated the spotlight for irradiating identification information with an illuminance inadequate for eye an inadequate hatchet in recognition impotentia or recognition. Then, as shown in drawing 16 e, f, and g, the pattern 1610 for recognition raises the illuminance. The illuminance of the pattern 1610 for recognition may be raised almost regularly or irregularly, and it may raise or lower and it may be fluctuated. For example, it is raising an illuminance comparatively quickly, raising an illuminance late gradually or repeating the change in an illuminance at random at the beginning etc.

[0140] Thus, while irradiating the pattern 1610 for recognition, recognition of the identification information of the inside display frame 312 is attained gradually, it can fully recognize now soon, and one arbitrary identification information is displayed possible [ recognition ]. In the example shown in drawing 16 h, "7" was displayed possible [ recognition ] and the state where "777" gathered has appeared.

[0141] Thus, an appearance of the special halt result mode of "777" repeats the switching action of the large winning-a-prize mouth 24 16 times at the maximum as a game state specially. In this case, the pattern 1610 for recognition is extinguished after that, and you may make it display the identification information of "7" as shown also in the inside display frame 312 by the display frames 311 and 313 of two right and left.

[0142] A production indication of the message of "7 come out" may be made to be given in the viewing-area upper part of the pattern display 310 at the midst to which the pattern 1610 for recognition irradiates identification information on the other hand that it should display on the inside display frame 312 specially. Then, if the special halt result mode of "777" finally appears, the switching action of the large

winning—a-prize mouth 24 will be specially repeated 16 times at the maximum as a game state. On the other hand, when the identification information which the pattern 1610 for recognition irradiates is different from what was displayed on other display frames, a display game is completed, without a halt result mode appearing specially. [0143] Thus, since grand prize generating is influenced by whether the pattern 1610 for recognition appears like real overshooting of a display game, or of a display frame of what the pattern 1610 for recognition in which it appeared irradiates identification information, unexpected nature fresh to a game person can be given, and interest can be drawn.

[0144] Drawing 17 shows an example, although the pattern 1610 for recognition moves. In the example shown in drawing 17 a—e, it is moving so that the pattern 1610 for recognition may approach identification information. The approach to the identification information of the pattern 1610 for recognition may be regular, and may be irregular. It is hard coming to attach prediction of whether to irradiate so that the pattern 1610 for recognition can finally recognize identification information, and a game person's thrill and excitement can be further evoked because the pattern 1610 for recognition approaches irregularly. Moreover, it not only approaches, but the pattern 1610 for recognition may approach or you may estrange it.

[0145] Drawing 18 shows the case where the range which the pattern 1610 for recognition irradiates is extended. In this example, as shown in drawing 18 a—f, although the pattern 1610 for recognition has extended the range irradiated centering on the center section of identification information which should be irradiated, the center of the pattern 1610 for recognition may not be the center section of identification information, and it may separate from it from identification information. Moreover, it may spread [ which is not spreading steadily ] or the range which the pattern 1610 for recognition irradiates may narrow.

[0146] If the range which the pattern 1610 for recognition irradiates spreads and all of identification information are irradiated as shown in drawing 18 f, identification information "7" will be displayed on the inside display frame 312, and a set and a special halt result mode will be formed for identification information by "777." On the other hand, identification information "1" is displayed on the inside display frame 312, and identification information does not gather in "717", but it is generated when a halt result mode is not formed specially.

[0147] Although the above showed that in which the pattern 1610 for recognition appears when the identification information of "7" indicated by halt and the reach display mode was formed in the display frame of two of three right and left After a blank display mode is formed without forming a reach display mode, you may make it possibility of becoming a halt result mode specially arise irrespective of the game expansion till then because the pattern 1610 for recognition appears and the pattern 1610 for recognition appears.

[0148] Thereby, a game person's thrill and hope can be evoked and it can be made to continue to the last. In addition, you may make the pattern for discernment

appear two or more not only in one. You may make it possibility that a halt result mode will appear specially with the advent of two or more patterns for recognition become high.

[0149] Moreover, you may make the pattern 1610 for recognition which imitated the sun for removing the cover pattern 1620 which imitated the fog made inadequate [ interrupting the reflected light from identification information ] in recognition impotentia or recognition, and the cover pattern 1620 appear, as shown in drawing 19 .

[0150] As shown in this drawing a-c, the identification information which is the pattern of "7" comes to appear gradually, and as shown in this drawing d, when the pattern of "7" appears, halt result modes will be together formed specially with "777", because the pattern 1610 for recognition removes the cover pattern 1620.

[0151] You may make it display the identification information in recognition impotentia or a display mode inadequate in recognition as a different thing from all the identification information of a display gestalt when it can recognize, as shown in drawing 20 . That is, the cover pattern 1620 is removed with the advent of the pattern 1610 for recognition which imitated the sun as shown in these drawings b and c (fog dispelled), and the identification information which looked like [ as shown in drawing 20 a ] the bogy of an umbrella in the cover pattern 1620 which imitated fog turns into identification information which drew the number "7" on the wooden pattern according to it. As all identification information of a display gestalt when it can recognize, you may be the pattern of not only a wooden pattern but a mailbox, a telegraph pole, etc., and the identification information (bogy pattern of an umbrella) in recognition impotentia or a display mode inadequate in recognition does not exist in these patterns.

[0152] Next, control of the main part 1 of a game machine is explained using the flow chart shown in drawing 13 – drawing 15 . Drawing 13 is a flow chart which shows operation of main processing of the main substrate 100. A reset signal will be inputted into the one chip microcomputer 101 carried in the main substrate 100 if a power supply is supplied to the main part 1 of a game machine. If a reset signal is inputted, CPU102 of an one chip microcomputer 101 will initialize a program counter (PC), and will perform a program from the start address (Step 001) of main processing.

[0153] A start of main processing performs interruption initial setting of Step 001. In interruption initial setting, a setup of an interrupt vector table, an interruption prohibition setup, etc. of dependence to the above CPU 102 are performed. Then, in initialization of the hardware of Step 002, various kinds of devices and input/output interfaces which are connected to the above CPU 102 are set up. Parallel I/O and serial I/O are prepared for the input/output interface here.

[0154] Next, the input of a RAM initialization switch is checked at Step 003. A RAM initialization switch is a switch of hardware installed in the rear face of the game board 2, if this switch is pushed on the power up, will judge an input by this

processing and will branch processing. When the check with an input is completed, processing is shifted to Step 005 and a game information-storage field is initialized compulsorily. In having no input, processing shifts to Step 004.

[0155] Check processing of the power failure flag of Step 004 is check processing of a flag in which it judges whether power failure detection was carried out before and evacuation action of a game information-storage field was performed. In this case, when a power failure flag is ON (1), it judges that the above-mentioned action was performed, processing is branched, and processing is shifted to return operation of the game information-storage field after Step 012. On the other hand, when a power failure flag is OFF (0), it shifts to the following step 005.

[0156] Initialization of the stack pointer of Step 005 initializes the pointer (address) of the stack area which CPU102 manages. Initialization of the game information-storage field of Step 006 sets up necessary minimum various parameters besides clear processing, and sets up a game information-storage field at the time of factory shipments.

[0157] Starting of the timer interrupt of Step 007 and permission of interruption set up the hardware timer connected to CPU102, and operate this timer, and the interrupt setting of CPU102 is changed into an interruption permission (possible) state from a prohibition state, and it is made for timer-interrupt processing (from Step 101 to Step 110 of drawing 14 ) to operate.

[0158] The surveillance of the change time of a pattern, and management of the random number for patterns, the control transfer to a waiting-for-customers demonstration screen, the surveillance of the released time of the large winning-a-prize mouth 24, the surveillance of the winning-a-prize number of counts and the sub routine that the check of a pattern hold sphere etc. is specially performed and is mentioned later for details explain special pattern game processing of Step 008 specially.

[0159] The surveillance of the winning-a-prize number of counts usually accompanying the surveillance of an operation of the electric accessory solenoid 136 in pattern game processing of Step 009, the surveillance of change time and operation, the check of a common pattern hold sphere, a hit judging, etc. are performed.

[0160] External-information edit processing of Step 010 is processing which edits the signaling information outputted from an external end-connection hypothecium or the test firing stimulus terminal 116, and is stored in a game information-storage field. The awarded-balls signal outputted in edit processing of the aforementioned signaling information whenever it pays out the predetermined number of spheres, The special pattern decision signal outputted whenever a pattern ends change specially and it stops, a pattern usually ends change and it stops -- \*\* -- it is alike and outputs -- usually -- a pattern decision signal and the special pattern hold signal which signal-izes the number of holds of a pattern and outputs it specially -- usually, the number of holds of a pattern is signal-ized and is outputted -- the

output surveillance and setup of a pattern hold signal etc. are usually performed [0161] In the main random number update process of Step 011, it has prevented that a pattern stops in the same turn by adding the random number for synchronous prevention corresponding to the pattern random number about each halt pattern which extracted the random number for synchronous prevention corresponding to each halt pattern etc., and was extracted by the timer-interrupt processing ( drawing 14 ) mentioned later, respectively.

[0162] Step 011 is repeatedly performed by main processing from Step 008. Moreover, a timer interrupt operates in the meantime, by performing timer-interrupt processing in parallel, the main part 1 of a game machine is game possible, and the game information-storage field is updated.

[0163] Stack-pointer return processing of Step 012 is check processing of the power failure flag of the aforementioned step 004, and when a power failure flag is ON (1), it shifts. The stack pointer which is a part of game information evacuated at the time of a power failure will be reset up here.

[0164] Although it is the almost same processing as the aforementioned step 007, timer-interrupt starting processing of Step 013 puts in register return processing of Step 014 between processing of starting of Step 013, and interruption permission processing of Step 015, and since it completes return processing, it is made to be possible [ the processing of timer-interrupt processing ].

[0165] If return processing of Step 012 to the step 014 is completed, CPU102 will be operated from an effective address at the time of the power failure of a part of game information-storage field which evacuated at the time of a power failure. It is made for setting processing of the power failure flag OFF of Step 016 not to make processing a next power up shift to power-fail-recovery processing.

[0166] Drawing 14 is a flow chart which shows operation of timer-interrupt processing of the main substrate 100. If timer-interrupt processing is permitted by Step 007 and Step 015 of main processing ( drawing 13 ) which were mentioned above and it becomes an execute permission by them, timer-interrupt processing will be performed at intervals of the set-up time. Between repeat processings of Step 008 to the step 011 of the aforementioned main processing, a timer interrupt is started and following-\*\*ed processing is performed.

[0167] By register evacuation processing of the first step 101, the register of CPU102 in the time of timer-interrupt processing being started is first evacuated to a stack area. The information on the various devices connected to CPU102 (the starting mouth switch 121, each winning-a-prize mouth switch 122,123, usually signal of the pattern display operation gate switch 126, the glass door opening pilot switch 132, the overflow switch 133, the chute sphere piece switch 131, and awarded-balls-detection switch 130 grade) is read from input port through an input/output interface, and the input process of Step 102 memorizes it to a game information-storage field.

[0168] In output processing of Step 103, the game status information edited by

other processings focusing on Step 010 of the aforementioned main processing is read from a game information-storage field, an output port is accessed through the input/output interface connected to CPU102, and it outputs to the large winning-a-prize mouth solenoid 134, the common electric accessory solenoid 136, the common pattern display 310, the external terminal for the boards, and the external terminal for frames as a signal.

[0169] In command transmitting processing of Step 104, the game control information edited by other processings is read from a game information-storage field, and it outputs to various kinds of devices connected to CPU102 from an output port through an input/output interface. The display-control substrate 300, the ramp-control substrate 400, the expenditure control board 200, the voice-control substrate 500, etc. serve as a controlled system at an output place.

[0170] In addition to the content of Step 011 in the aforementioned main processing, in a timer-interrupt random number update process of Step 105, large this the random number for a judgment used for a great success lottery, a pattern random number, a reach execution random number, a control pattern random number, etc. are updated.

[0171] Large this the random number for a judgment is a random number for determining the probability for determining whether generate great success in advance specially as a result of the adjustable display of the pattern in the pattern display 310. If it counts up every [ 1 ] and 1 round (0-299) is taken for every random number update process, large this the random number for a judgment consists of numeric values of 0-299, and it casts lots in a next starting position, and it is constituted by making a lottery result into a starting position so that it may recount up every [ 1 ]. For example, when a lottery result is 59, it counts up every [ 1 ] to 59-58 by making 59 into a starting position.

[0172] It is for determining each halt pattern specially specified as a display result of the pattern display 310, a pattern random number consists of values of 0-9 respectively, and if it counts up every [ 1 ] for every predetermined timing and a upper limit ("9") is reached, it is constituted so that it may recount up from 0 again.

[0173] If determine whether perform special production by the time the last halt pattern is decided, and it consists of values of 0-14, for example, it counts up every [ 1 ] for every random number update process and a upper limit ("14") is reached when a reach display mode appears, the reach execution random number is constituted so that it may recount up from 0 again.

[0174] A production pattern random number determines various control patterns at the time of adjustable display execution, consists of values of 0-5, for example, if it counts up every [ 1 ] for every random number update process and a upper limit ("5") is reached, it is constituted so that it may recount up from 0 again.

[0175] A timer update process of Step 106 updates the time from the adjustable display start of various patterns to a halt, the software timer (counter) for usually carrying out a fixed time output of the display (lighting) time and the expenditure

control signal of the pattern display 140, etc. in the pattern display 310 specially. These control processings control ON/OFF of a signal, supervising this timer.

[0176] An error update process of Step 107 is processing which detects an error by carrying out the fixed time supervision of the expenditure sensor information which is one of the information acquired by Step 102, and checking movement of a sphere. When movement of a sphere cannot be checked by the expenditure sensor, plugging of a sphere etc. is considered to be the cause on the path before a sensor position, and error information is updated. Moreover, error information is updated when it changes into the state where supervised similarly the switching-condition information on the glass holder of the front face of a game machine, and the glass holder opened in addition to the error surveillance using expenditure sensor information.

[0177] Switch surveillance processing of Step 108 reads each sensor inputted by Step 102 and the status information of a switch from a game information-storage field, and updates game status information. It counts, whenever it detects [ the starting mouth switch 121, each winning-a-prize mouth switch 122,123 the accessory continuation operation operation switch 124, the count switch 125, the awarded-balls-detection switch 130 and ] passage of a sphere, respectively, usually concerning detection of spheres, such as the pattern display operation gate switch 126, and generation edit is carried out as game status information, and target sensor and switch memorize to a game information-storage field here.

[0178] Register return processing of Step 109 returns the content of the register evacuated at Step 101 to CPU102 from a stack area. Timer-interrupt permission processing of Step 110 carries out next timer-interrupt processing to permission.

[0179] Drawing 15 is a flow chart which shows operation of NMI interruption processing of the main substrate 100. NMI interruption processing is started by the power failure detecting signal outputted from the power failure detector 709 in the power supply substrate 700. If a power failure detecting signal is inputted into CPU102, NMI interruption processing will be performed and the following content will be processed.

[0180] By register evacuation processing of Step 201, the register of CPU102 at the time of power failure detection is first evacuated to a stack area. Although the content of a register is evacuated at this time, the address in front of NMI interruption is automatically evacuated before this. Power failure flag-on setting processing of Step 202 is processing which sets it as a game information-storage field as a flag that detected the power failure and processing was performed at the time of these power failure detection.

[0181] Game information-storage field access prohibition processing of Step 203 is setting processing which carries out access (R/W) to a game information-storage field to prohibition by hardware. Access of a game information-storage field will be in the state where become impossible and it is protected, by processing after this.

[0182] It waits for evacuation action of the game information-storage field at the

time of a power failure to be ended now, and to go into an endless loop, without considering the NMI interruption processing itself as an end, to stop processing of parenchyma CPU 102, and to cut off current supply completely. This is because a timer interrupt will be processed and operation becomes unfixed, since there is time until current supply is cut off completely, after ending NMI interruption processing.

[0183] As mentioned above, although the drawing has explained the operation gestalt of this invention, concrete composition is not restricted to these operation gestalt, and even if there are the change and the addition in the range which does not deviate from the summary of this invention, it is included in this invention.

[0184] Moreover, although the pattern 1610 for recognition was made to appear with the gestalt of operation after a display game advanced to some extent, for example, the pattern 1610 for recognition may be made to appear from the beginning of a display game, and irradiation of the pattern 1610 for recognition may be made to start with advance of a game. In addition, in the thing which makes the pattern 1610 for recognition appear on condition that the reach state appeared, unexpected nature fresh to a game person can be given compared with the case where the pattern 1610 for recognition has appeared, from the beginning.

[0185] In addition, although the pattern of a number was used as identification information with the gestalt of operation, you may use patterns, such as a character, various kinds of signs or animals, and vegetation, etc. as identification information. Moreover, with the gestalt of the above-mentioned operation, although this invention was explained about the pachinko game machine, this invention is applicable also like a game machine called the smart ball game machine and arrangement ball game machine by which program control is carried out. Also in such each \*\*\*\*\*, the same effect as the gestalt of the above-mentioned implementation is done so.

[0186]

[Effect of the Invention] Since the pattern for recognition whose recognition of identification information is enabled like real overshooting of a display game appears and it was made to irradiate identification information with the pattern for recognition inadequate in recognition potentia or recognition according to the game machine concerning this invention, with the pattern for recognition, which identification information appears can give unexpected nature fresh to a game person, and it can draw interest. Moreover, the illuminance of the pattern for recognition can be raised regularly, it can raise irregularly, or the content of a game which is rich in the much more unexpected nature and much more change can be offered in what is fluctuated.

[0187] Moreover, the further thrill and further excitement are given to the game person whose hope was evoked with the advent of a reach display mode in the thing which makes the pattern for recognition appear on condition that it became the so-called reach display mode.

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[Translation done.]

\* NOTICES \*

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- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.\*\*\*\* shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

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#### DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is the front view showing the game machine concerning the gestalt of 1 operation of this invention.

[Drawing 2] It is the rear view showing the game machine concerning the gestalt of 1 operation of this invention.

[Drawing 3] It is the front view showing the game board of the game machine concerning the gestalt of 1 operation of this invention.

[Drawing 4] It is explanatory drawing showing the internal structure of the game machine concerning the gestalt of 1 operation of this invention.

[Drawing 5] It is the block diagram showing the whole circuitry of the game machine concerning the gestalt of operation of this invention.

[Drawing 6] It is the block diagram showing the circuitry of the main substrate which the game machine concerning the gestalt of operation of this invention has.

[Drawing 7] It is the block diagram showing the circuitry of the expenditure control board which the game machine concerning the gestalt of operation of this invention has.

[Drawing 8] It is the block diagram showing the circuitry of the display-control substrate which the game machine concerning the gestalt of operation of this invention has.

[Drawing 9] It is the block diagram showing the circuitry of the ramp-control substrate which the game machine concerning the gestalt of operation of this invention has.

[Drawing 10] It is the block diagram showing the circuitry of the voice-control substrate which the game machine concerning the gestalt of operation of this invention has.

[Drawing 11] It is the block diagram showing the circuitry of the discharge control board which the game machine concerning the gestalt of operation of this invention has.

[Drawing 12] It is the block diagram showing the circuitry of the power supply substrate which the game machine concerning the gestalt of operation of this invention has.

[Drawing 13] It is the flow chart of the main processing in the game machine concerning the gestalt of operation of this invention.

[Drawing 14] It is the flow chart of the timer-interrupt processing in the game machine concerning the gestalt of operation of this invention.

[Drawing 15] It is the flow chart of the NMI interruption processing in the game machine concerning the gestalt of operation of this invention.

[Drawing 16] It is explanatory drawing showing the flow of the display game of the game machine concerning the gestalt of operation of this invention specially developed with pattern display.

[Drawing 17] It is explanatory drawing showing the flow of the display game of the game machine concerning the gestalt of operation of this invention by which the pattern for recognition approaches identification information in pattern display specially.

[Drawing 18] It is explanatory drawing showing the flow of the display game in which the range of the game machine concerning the gestalt of operation of this invention which irradiates the identification information of the pattern for recognition with pattern display specially spreads.

[Drawing 19] It is explanatory drawing showing the flow of the display game of the game machine concerning the gestalt of operation of this invention from which the pattern for recognition removes the cover pattern in pattern display specially.

[Drawing 20] It is explanatory drawing showing the flow of the display game of the game machine concerning the gestalt of operation of this invention from which the pattern for recognition removes the cover pattern in pattern display specially.

[Description of Notations]

- 1 --- Main part of a game machine
- 2 --- Game board
- 3 --- Top saucer
- 4 --- Bottom saucer
- 5 --- Handle
- 6 --- Ash pan
- 7 --- Top saucer sphere omission lever
- 8 --- Bottom saucer sphere omission lever
- 9 --- Loan button
- 10 --- Return button
- 11 --- Glass holder
- 12 --- Frequency display
- 15 --- Wind mill
- 16 --- Guidance rail
- 21 --- Starting mouth

22a --- \*\*\*\* winning-a-prize mouth  
22b --- \*\*\*\* winning-a-prize mouth  
23a --- Right ore-shoot winning-a-prize mouth  
23b --- Left ore-shoot winning-a-prize mouth  
24 --- Large winning-a-prize mouth  
29 --- Out mouth  
100 --- Main substrate  
101 --- One chip microcomputer  
102 --- CPU  
103 --- ROM  
104 --- RAM  
105 --- NMI  
106 --- I/O Port  
107 --- Internal timer  
108 --- Clock circuit  
109 --- Clock synchronization and delay circuit  
110 111 --- Gate circuit  
112a-112g --- Latch circuit  
113 --- Address decoding circuit  
114 --- Buffer  
115 --- Reset  
116 --- Test firing stimulus terminal  
121 --- Starting mouth switch  
122a --- \*\*\*\* winning-a-prize mouth switch  
122b --- \*\*\*\* winning-a-prize mouth switch  
123a --- Right ore-shoot winning-a-prize mouth switch  
123b --- Left ore-shoot winning-a-prize mouth switch  
124 --- Accessory continuation starting device switch  
125 --- Count switch  
126 --- It is usually a pattern display operation gate switch.  
126a --- Right common pattern display operation gate switch  
126b --- Left common pattern display operation gate switch  
130 --- Awarded-balls-detection switch  
130a --- Right awarded-balls-detection switch  
130b --- Left awarded-balls-detection switch  
131 --- Chute sphere piece switch  
132 --- Glass-holder opening pilot switch  
133 --- Overflow switch  
134 --- Large winning-a-prize mouth solenoid  
135 --- Direction change solenoid  
136 --- It is usually an electric accessory solenoid.  
140 --- It is usually pattern display.

200 -- Expenditure control board  
201 -- One chip microcomputer  
202 -- Counter circuit  
203 -- CPU  
204 -- ROM  
205 -- RAM  
206 -- NMI  
207 -- I/O Port  
208 -- Internal timer  
209 -- Clock circuit  
210 -- Clock synchronization and delay circuit  
211 212 -- Gate circuit  
213 -- Address decoding circuit  
214 215 -- Latch circuit  
216 -- Reset  
220 -- Ball rental is carried out and it is a pilot switch.  
220a-- right ball rental is carried out, and it is a pilot switch.  
220b-- left ball rental is carried out, and it is a pilot switch.  
222 -- Expenditure motor  
223 -- Expenditure halt solenoid  
224 -- Path change solenoid  
300 -- Drop control board  
301 -- Drop control CPU  
302 -- Drop control ROM  
303 -- Drop control RAM  
304 -- Picture control IO  
305 -- Image data ROM  
306 -- Input/output interface  
307 -- Test firing stimulus terminal  
310 -- It is pattern display specially.  
311 -- Left display frame  
312 -- Inside display frame  
313 -- Right display frame  
400 -- Ramp-control substrate  
401 -- Ramp-control CPU  
402 -- Ramp-control ROM  
403 -- Ramp-control RAM  
404 -- Input/output interface  
405 -- Driver line  
420 -- It is the pattern hold Light Emitting Diode specially.  
421 -- It is usually the pattern hold Light Emitting Diode.  
422 -- Game machine state lamp

423 -- Side case lamp  
424 -- Game frame state lamp  
425 -- Pin center,large Light Emitting Diode  
426 -- Gate Light Emitting Diode  
427 -- Attacker Light Emitting Diode  
428 -- Side Light Emitting Diode  
500 -- Voice-control substrate  
501 -- Voice control CPU  
502 -- Voice control ROM  
503 -- Voice control RAM  
504 -- Voice control IC  
505 -- Voice data ROM  
506 -- Input/output interface  
507 -- Amplifier circuit  
510 -- Loudspeaker  
600 -- Discharge control board  
601 -- Oscillator circuit  
602 -- Frequency divider  
603 -- Motorised signal-control circuit  
604 -- Driver line  
650 -- Handle section  
651 -- Touch sensor  
652 -- Aborted firing switch  
653 -- Discharge motor  
700 -- Power supply substrate  
701 -- Constant-voltage-power-supply equipment  
702 -- Backup power supply  
703 -- Voltage detector  
704 -- Shift register  
705 -- RAM initialization switch  
706 -- Clock circuit  
707 -- Delay circuit  
708 -- Voltage detector  
709 -- Power failure detector  
800 -- External terminal assembly for frames  
801 -- Awarded-balls tank sphere existence switch  
850 -- External terminal assembly for the boards  
900 -- Card unit connection substrate  
1610 -- Pattern for recognition  
1620 -- Cover pattern  
a -- Control-panel substrate

b — Card unit  
c — Power supply AC24V

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[Translation done.]

\* NOTICES \*

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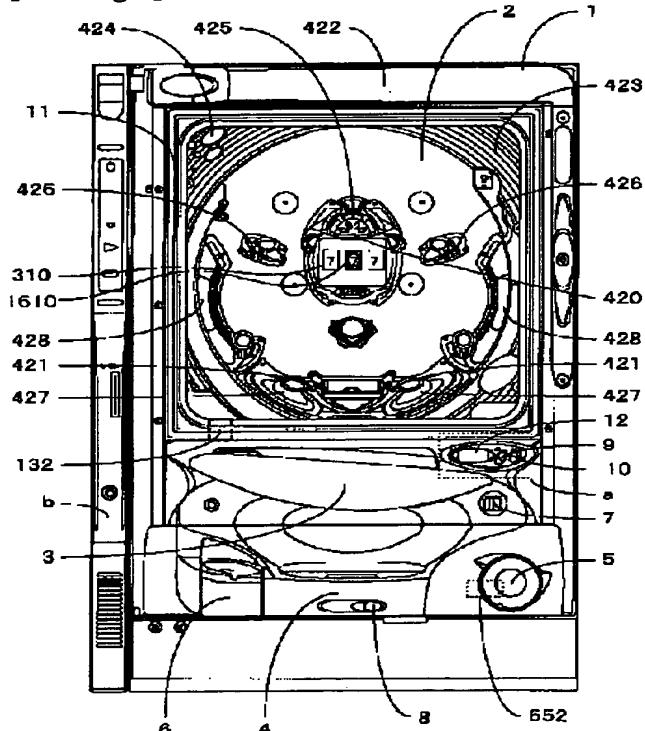
1. This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.\*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

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DRAWINGS

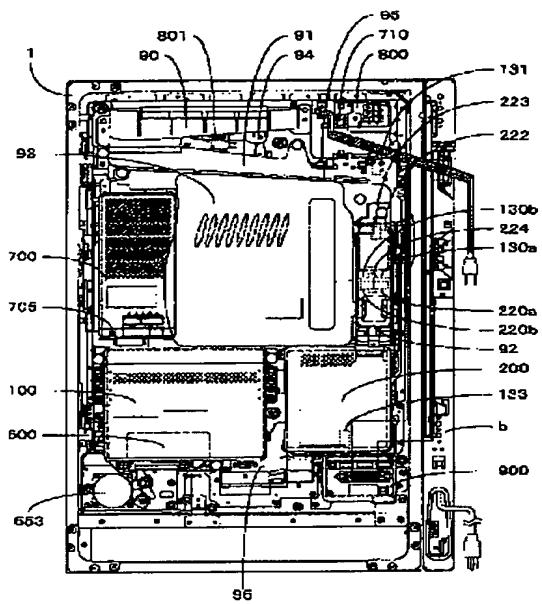
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[Drawing 1]

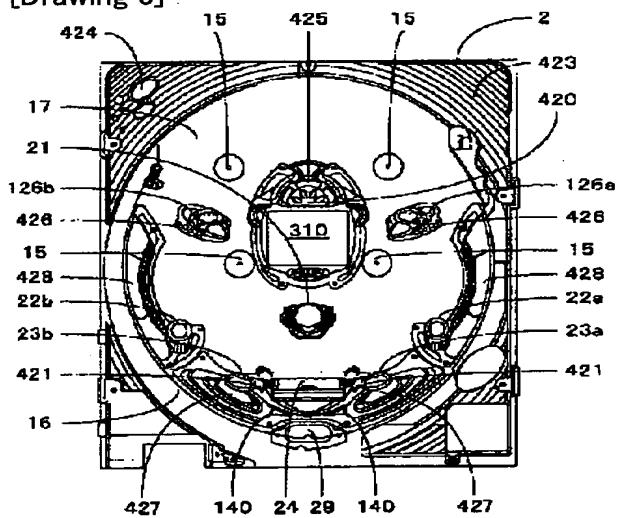


310…特別回路表示装置  
1610…認識用回路

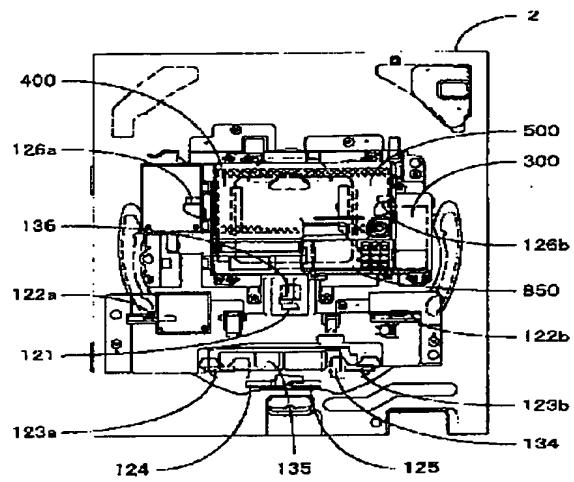
[Drawing 2]



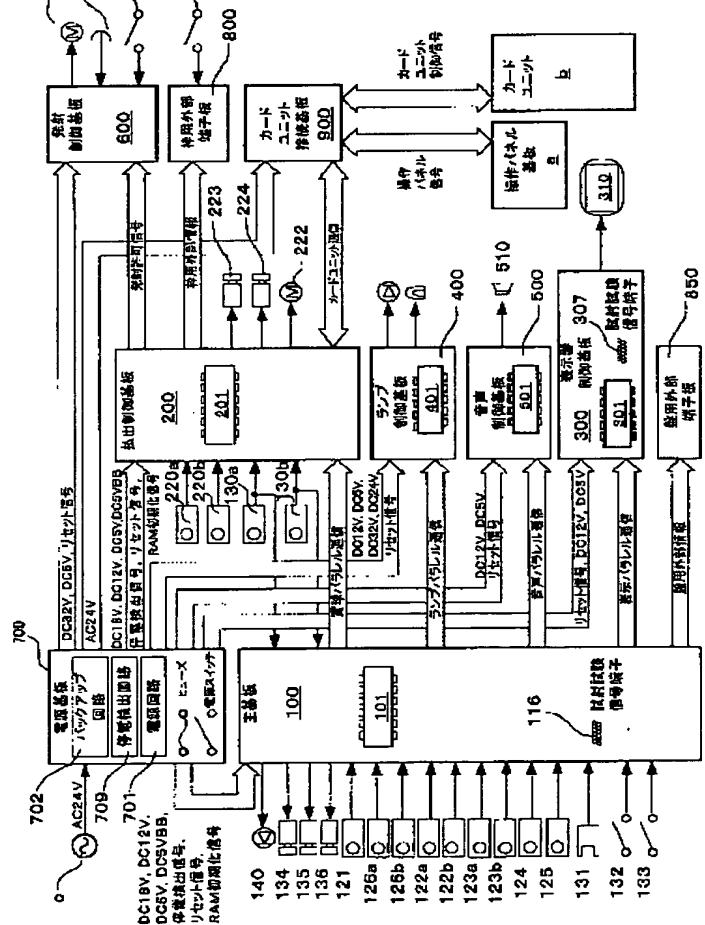
[Drawing 3]



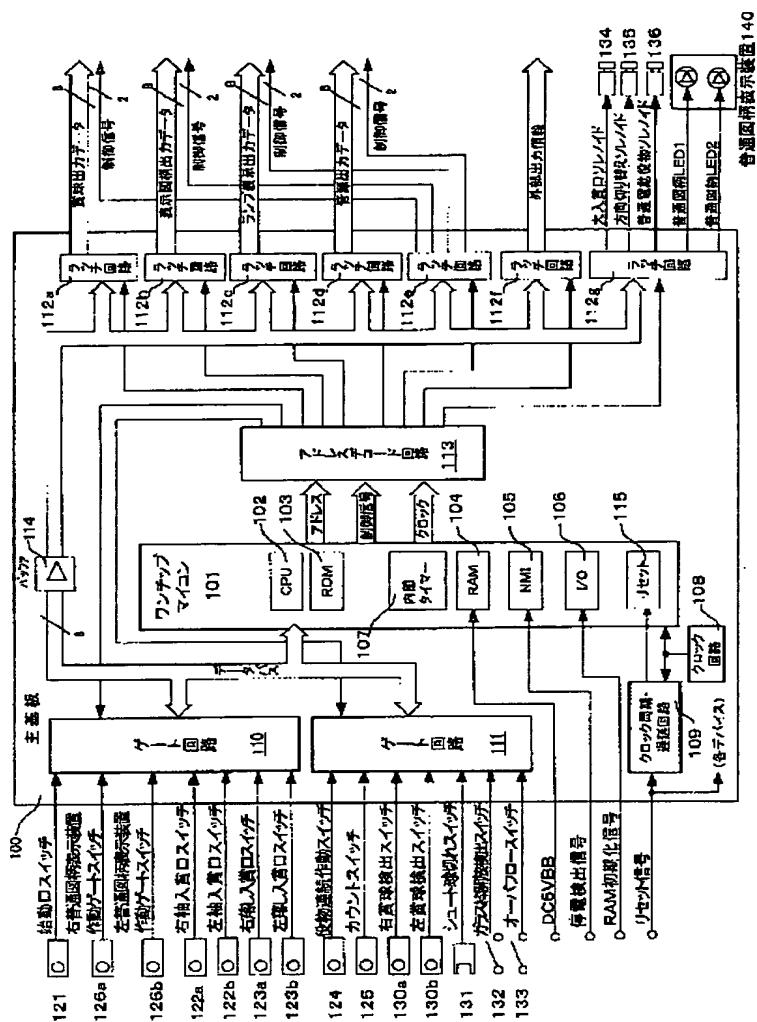
[Drawing 4]



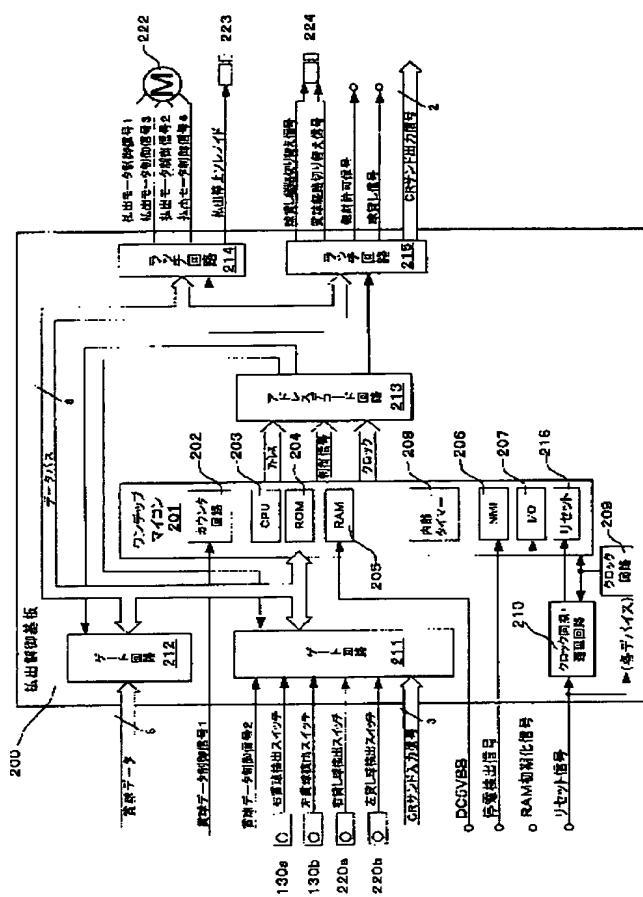
### [Drawing 5]



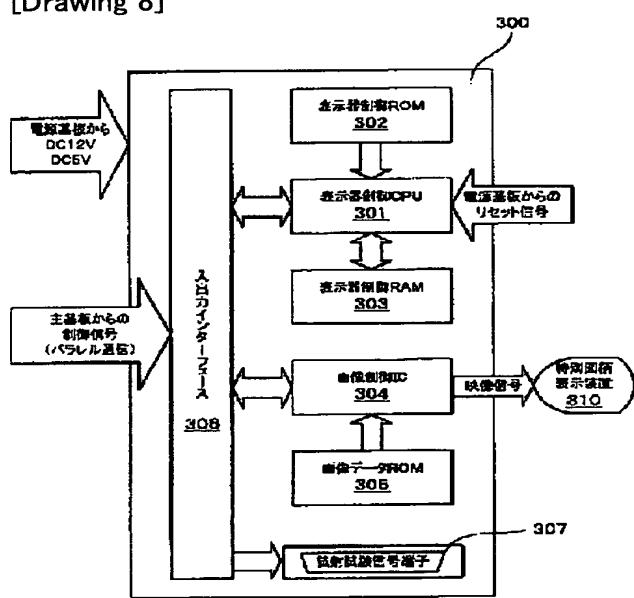
[Drawing 6]



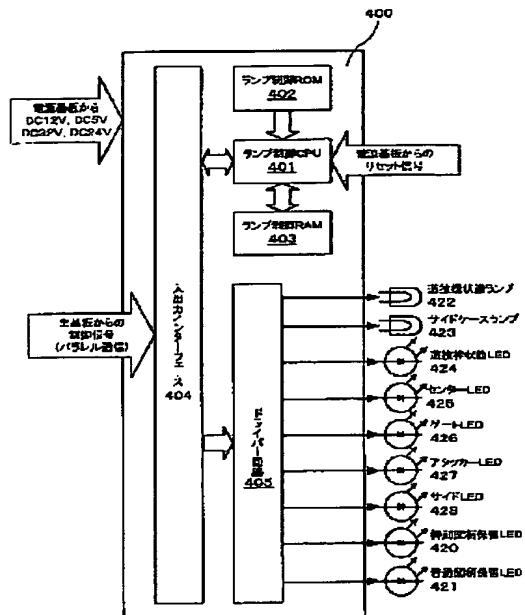
[Drawing 7]



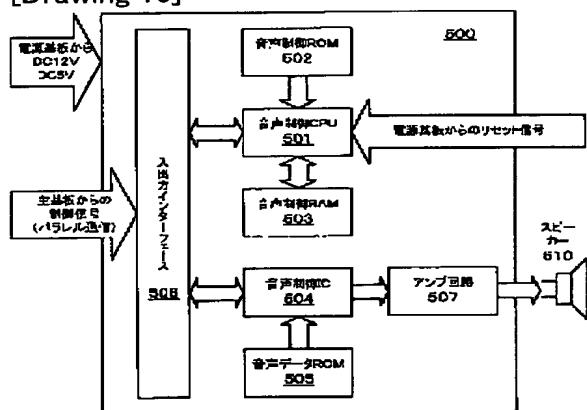
[Drawing 8]



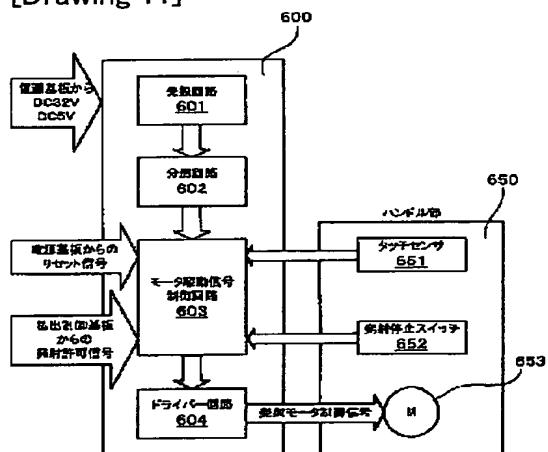
[Drawing 9]



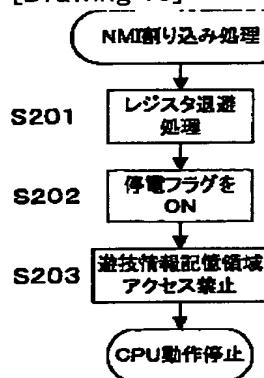
[Drawing 10]



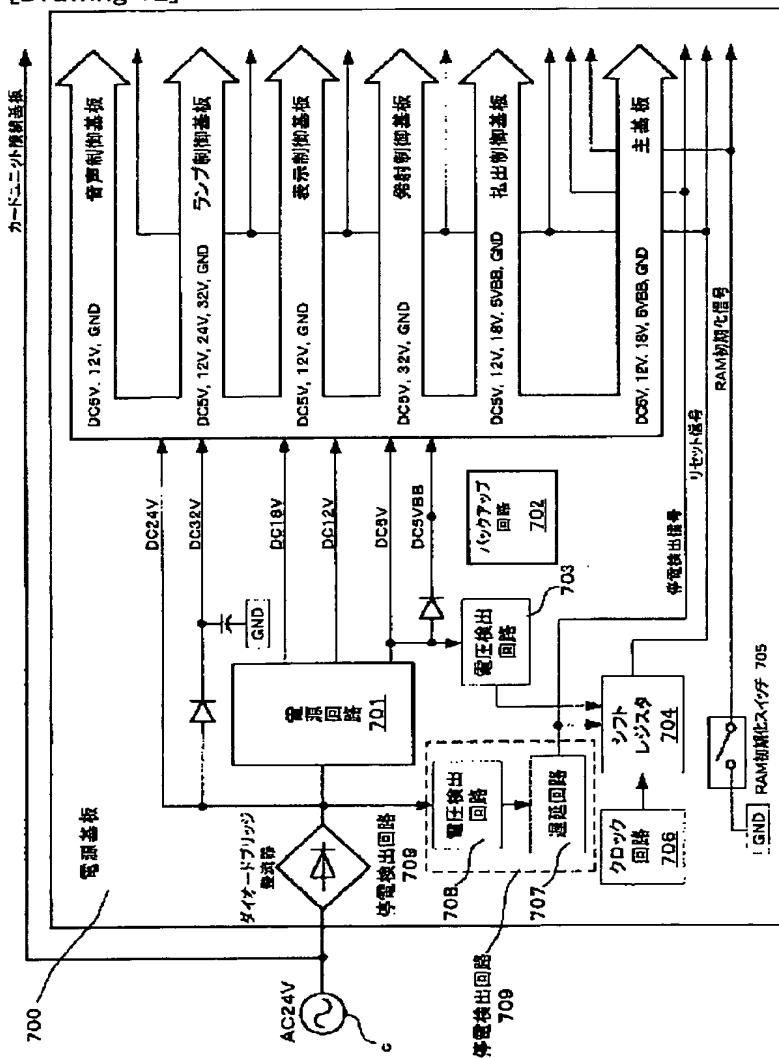
[Drawing 11]



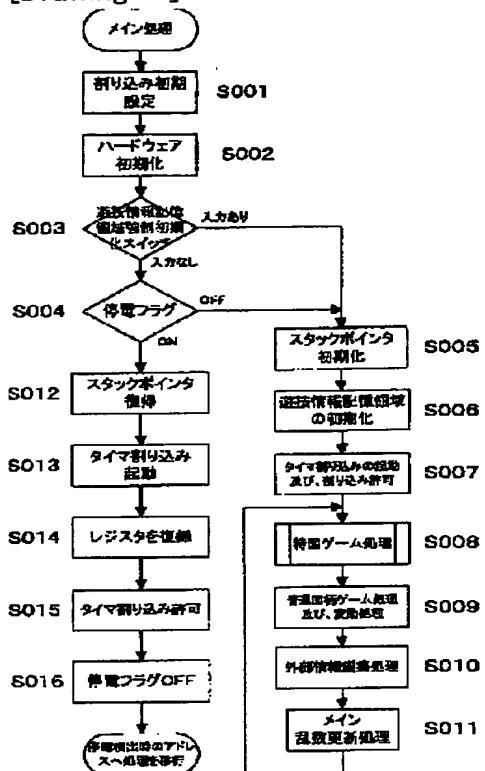
[Drawing 15]



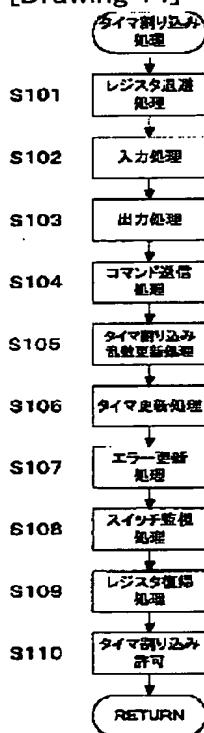
[Drawing 12]



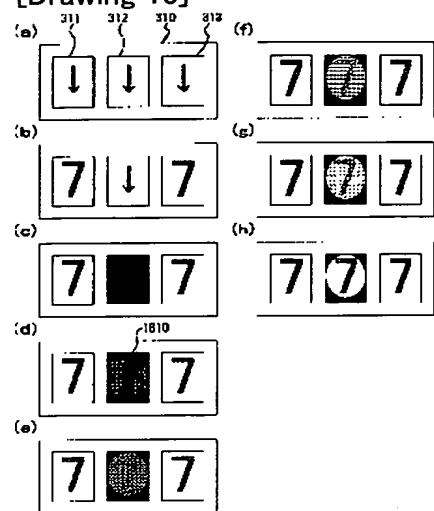
[Drawing 13]



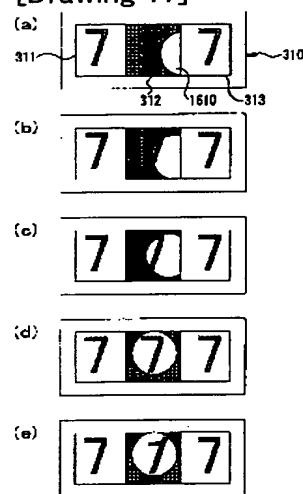
[Drawing 14]



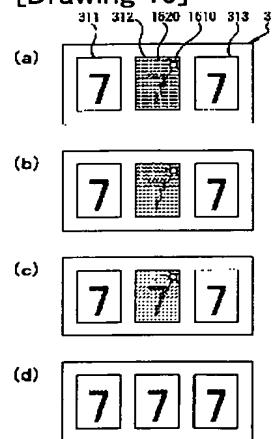
## [Drawing 16]



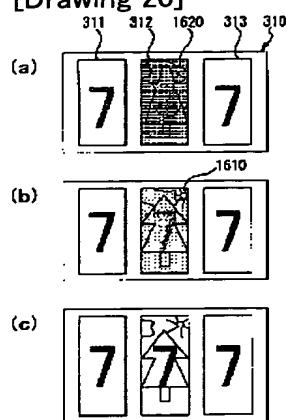
## [Drawing 17]



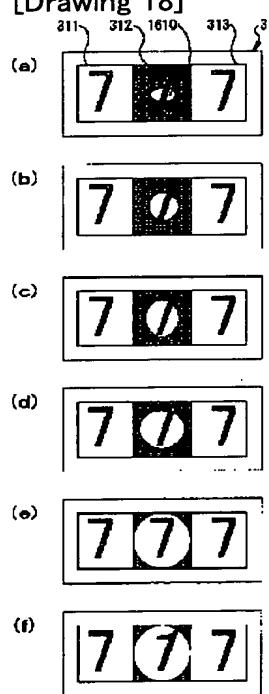
## [Drawing 19]



## [Drawing 20]



## [Drawing 18]



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[Translation done.]